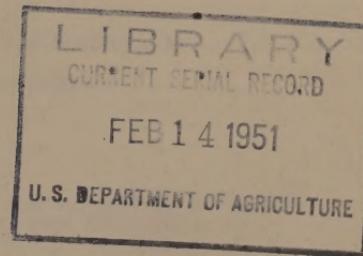


1,756
A2R29

Copy 2

Report of the Administrator of the Production and Marketing Administration 1950



UNITED STATES DEPARTMENT OF AGRICULTURE

CONTENTS

	Page
The year in summary	1
The price-support program	2
Adjustment operations	2
The storage program	2
The agricultural conservation program	3
Export operations	3
The International Wheat Agreement	3
Surplus-removal operations	4
Special sale, donation, and barter operations	5
The school lunch program	5
Marketing research	6
Marketing regulation	7
Marketing services	8
Cotton and cottonseed	8
Price-support operations	8
Surplus-removal operations	9
Production adjustment operations	10
Standardization activities (including research)	11
Classing and grading	12
Market reports	12
Price-quotation supervision	13
Cotton testing service	13
Ginning and packaging research	14
Marketing research	16
Dairy products	17
Price support	17
Marketing agreements and orders	18
Agricultural supply program	19
School lunch activities	19
Market news	19
Standardization	20
Inspection and grading	21
Activities under the Research and Marketing Act	21
Fats and oils	22
Price support	22
Supply programs	24
Import control	24
Peanut marketing quotas	25
Activities under the Research and Marketing Act	25
Fruits and vegetables	26
Marketing agreement and order programs	26
Regulation	27
Market news	28
Price support	29
Standardization	31
Inspection	34
Marketing research under the Research and Marketing Act	35
Grain, flaxseed, soybeans, beans and peas, and seeds	36
Price support	36
Inventories	38
Exports	38
Production adjustment	38
Market news	39
Regulation	39
Activities under the Research and Marketing Act	41
Other research	42

	Page
Livestock, meats, and wool	4
Price support	44
Procurement	44
Regulation	45
Market news	46
Standardization	46
Meat grading	47
Foreign trade	48
Research	48
Production and marketing analysis	49
Consolidation of field offices	49
Poultry and poultry products	49
Price support	49
Support operations for eggs	50
Disposition of price-support eggs	50
Turkey support operations	50
Disposition of price-support turkeys	51
Standards	51
Container tests	52
Research	53
Sugar	54
Consumption requirements, prices, and quotas	54
Wage and price determinations	56
Payments to producers	57
Purchases for the Army and ECA	58
Marketing research	60
Tobacco	61
Price support	61
Adjustment operations	62
Export operations	62
Inspection	62
Technical assistance and training activities	62
Market news	62
Tobacco Stocks and Standards Act	63
Activities under the Research and Marketing Act	63
Other research	63
Naval stores	64
Price-support operations	64
Regulation	64
Market information	65
Agricultural conservation program	66
Marketing facility and cross-commodity marketing research	67
New or improved market facilities	67
Frozen food facilities	68
Materials handling	69
Merchandising, packaging, and other marketing functions	69
Prepackaging of perishable food products	70
Transportation trends	71
Utilization of transportation equipment	71
Improvement of transportation equipment	72
Improvement in loading practices	72
Possible expansion of market news and grading	73
Food distribution programs	74
School lunch program	74
Direct distribution	75
Food trades program	76
Food preservation program	77
Transportation and warehousing	78
Storage activities	79
Transportation activities	81
Cold storage reports	82
Compliance and investigation	83

The Major Supply Problem

Report of the Administrator of the Production and Marketing Administration, 1950UNITED STATES DEPARTMENT OF AGRICULTURE,
PRODUCTION AND MARKETING ADMINISTRATION,

Washington, D. C., October 19, 1950.

HON. CHARLES F. BRANNAN,
Secretary of Agriculture.

DEAR MR. SECRETARY: I present herewith the report of the Production and Marketing Administration for the fiscal year ended June 30, 1950.

Sincerely yours,

RALPH S. TRIGG,
*Administrator.***THE YEAR IN SUMMARY**

Major programs of the Production and Marketing Administration during the fiscal year 1950, the 12-month period that ended June 30, 1950, were geared to a situation characterized by heavy supplies of a number of farm commodities, some decline in total demand, and considerable downward pressure on prices. But it was apparent at the end of the year that events tracing to the northern invasion of South Korea, military action by United Nations' forces, and strengthening of United States defenses would materially alter the pattern of PMA programs during the fiscal year 1951.

Production of food and nonfood commodities for sale and farm home consumption remained at a high level—about 140 percent of the pre-war (1935-39) average. Stocks of some of the principal commodities also were large. For example, it was estimated at the end of the year that the carry-over of wheat at the beginning of the new marketing season would be 416,000,000 bushels, as compared with 308,000,000 bushels the previous year; corn, 950,000,000 bushels, against 825,000,-000; and cotton, 6,700,000 bales, as contrasted with 5,300,000 in 1949.

At the same time, total demand decreased somewhat from a year earlier. Domestic demand kept even with the level of general economic activity, declining during the first 6 months of the fiscal year, but recovering markedly during the second 6 months. (Personal incomes, one indicator of demand, stood at the seasonally adjusted annual rate of \$217,000,000,000 in June 1950, as compared with the \$206,000,000,000 rate in June 1949.) Exports, however, dropped off sharply, largely reflecting the recovery of agricultural production in western Europe. (See Export Operations, p. 3.)

The Price-Support Program

As a result of the pressure on prices, the Commodity Credit Corporation, using personnel and facilities of the Production and Marketing Administration, carried on extensive price-support operations. Support operations were especially active for wheat, corn, cotton, peanuts, grain sorghums, potatoes, eggs, butter, and dry edible beans.

On June 30, 1950, the CCC's "investment" in price support—loans outstanding plus the cost of inventories—was \$3,538,000,000 as compared with \$2,373,000,000 a year earlier. Net realized losses on price support incurred during the fiscal year 1950 totaled \$249,000,000, as compared with \$254,000,000 the previous year. As in other recent years, potatoes represented a major loss item to the CCC—\$75,000,000.

The price-support program undoubtedly was a major factor in preventing serious declines in prices of several important commodities and aided vastly in stabilizing the over-all farm economy. The parity ratio, which expresses the relationship between prices received and paid by farmers, was 98 in July 1949. By January 1950, it had dropped to 94—the lowest since June 1941. From its January low point, however, the ratio rose gradually and reached 97 in June 1950. The average for the 12-month period was 97.

Adjustment Operations

Heavy supplies of some commodities set in motion the adjustment machinery provided for in existing agricultural legislation. Marketing quotas were approved by farmers for the 1950 crop of cotton, and growers continued their approval of marketing quotas for 1950 crops of burley, flue-cured, fire-cured, dark air-cured, and Virginia sun-cured tobaccos. Marketing quotas on 1950-crop peanuts, previously approved in referendum, were made effective. Also, to bring supplies more nearly in line with demand, acreage allotments were proclaimed for 1950 crops of corn, wheat, rice, dry edible beans, and Irish potatoes.

The Storage Program

An amendment to the Commodity Credit Corporation Charter Act approved June 7, 1949, paved the way for action by the CCC and PMA to provide facilities for storage of Government-owned commodities in areas where existing privately owned facilities were inadequate. At the beginning of the fiscal year, the CCC owned grain storage structures having a capacity of about 45,000,000 bushels. During the fiscal year, additional grain storage structures having a capacity of about 409,000,000 bushels were purchased. The CCC also was able to expand capacity by another 157,000,000 bushels through the following operations: Guarantee agreements with cooperatives and commercial warehouses, 82,000,000 bushels; loans to farmers for construction of on-farm storage facilities, 55,000,000 bushels; use of Maritime Commission ships, 12,000,000 bushels; and the lease or "right of entry" of noncommercial space from other Government agencies, 9,000,000 bushels.

The Agricultural Conservation Program

Good progress was made in the conservation of soil and water resources through such practices as seeding and reseeding of pastures, constructing dams, establishing green-manure and cover crops, building terraces, farming on the contour, and applying liming materials and fertilizer to establish and maintain stands of grasses and legumes. An appropriation of \$257,000,000 enabled farmers to carry out the essential conservation practices on their individual farms, although this assistance, limited to \$750 per farm, represented only a small part of the value of the conservation practices actually carried out. Administration of the agricultural conservation program at the county and community levels was handled, as in other years, in extremely capable fashion by locally elected farmer committees.

Export Operations

Agricultural production in the Marshall Plan countries continued in 1949 its marked recovery from war and postwar lows, reaching the prewar level. On the basis of early estimates, production in 1950 may slightly top prewar output. Largely as a result of this expansion in agricultural output, exports of food from the United States in the fiscal year 1950 totaled 15,565,000 long tons—a sharp drop from the 21,905,000 long tons exported the previous fiscal year. Exports of food during the period 1935-39, however, averaged only 4,223,000 long tons.

Of total exports, about 8,500,000 long tons, or 55 percent, were procured through operations of the Commodity Credit Corporation and the Production and Marketing Administration. Among the major commodities, the Department of Agriculture bought over 65 percent of the wheat and wheat products exported; about 48 percent of the other grains and grain products; more than 95 percent of the nonfat dry milk solids; 60 percent of the dry edible peas; 65 percent of the potatoes (including the raw material equivalent of potato flour); 50 percent of the soybeans and soybean products other than oil; and almost 90 percent of the eggs.

PMA handled shipping and storage functions necessary to move PMA-procured commodities for export from interior points to seaports, and arranged in some instances for ocean transportation.

The International Wheat Agreement

Sales of wheat, and wheat flour in terms of wheat equivalent, under the International Wheat Agreement totaled approximately 155,000,000 bushels during the period August 1, 1949-June 30, 1950. (The "International Wheat Agreement year," however, covers the period August 1, 1949-July 31, 1950.)

The average export payment for the period (including an allowance for the difference between the agreement price and market price on CCC sales) was calculated at 54 cents per bushel. This is the average amount CCC paid to exporters under the program to compensate them for the difference between the United States domestic price of wheat and the maximum price under the agreement. These export

payment rates ranged from a low of 13 cents for east coast exports in mid-August 1949 to a high of 69 cents for east coast exports on May 11, 1950. All sales were made at maximum prices under the agreement, including an allowance for quality factors in the case of classes of wheat other than the basic class.

The United States made sales under the agreement to Austria, Belgium, Bolivia, Brazil, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, El Salvador, Western Germany, Greece, Guatemala, Haiti, Ireland, Israel, Italy, Lebanon, Mexico, Netherlands, Nicaragua, Norway, Panama, Peru, Philippines, Portugal, Saudi Arabia, United Kingdom, and Venezuela.

Surplus-Removal Operations

Section 32, of Public Law No. 320, Seventy-fourth Congress, provides that an amount equal to 30 percent of the gross receipts from customs duties each calendar year shall be made available to the Secretary of Agriculture each fiscal year, principally for the purpose of widening the market outlet for surplus American farm commodities. Congress has recognized the importance of these funds to the agricultural economy by providing for the accumulation of unused balances to the extent of \$300,000,000 for surplus-removal operations. Export, direct distribution, and diversion programs were carried on under this authority during the fiscal year 1950.

The following tabulation shows project obligations, expenses, transfers, unobligated balance, and availability of section 32 funds for the fiscal year 1950:

Project obligations:

Direct distribution	\$41,760,027
Exports	25,249,080
Diversion	7,444,146
Administrative expenses	3,691,022
 Total above projects	78,144,275
Allotments and transfers to cooperating agencies	472,865
 Total obligations	78,617,140
Unobligated balance (available for use in future programs)	46,991,669
 Total funds available	125,608,809

Items channeled into direct distribution—to school lunch programs, to institutions, and persons in low-income groups—included fresh apples, pears, prunes, snap beans, cabbage, spinach, potatoes, and sweetpotatoes; dried raisins, prunes, eggs, and milk; and turkeys, butter, honey, and dry edible beans.

Commodities on which export payments were made included fresh apples, oranges, and pears; single-strength and concentrated orange juice; dried raisins, prunes, and eggs; and flaxseed, linseed oil, cotton, peanuts, wheat, and honey. Exports of some commodities were made under section 112 (f) of the Foreign Assistance Act, which authorizes use of section 32 funds to make payment of as much as 50 percent of the export sales price, including payments to Government agencies procuring and exporting surplus commodities to occupied areas and Marshall Plan countries.

Diverted from normal channels of trade to new markets or new uses were dried figs, raisins, prunes, almonds, walnuts, filberts, grain sorghums, and cotton.

The Agricultural Act of 1949 provided that section 32 funds "shall be devoted principally to perishable nonbasic agricultural commodities * * * and their products." Of total obligations incurred in the fiscal year 1950, 59 percent, or \$45,992,702, was devoted to perishable nonbasic commodities.

Special Sale, Donation, and Barter Operations

Every effort was made to liquidate price-support inventories through commercial sales in normal trade channels. To this end, PMA developed domestic and foreign price lists for regular public distribution. The first lists, compiled and released in January 1950, were prepared through the end of the fiscal year on a monthly basis. Pursuant to these lists, domestic sales of cottonseed oil, barley, butter, cheese, peanuts, flaxseed, dry edible beans, wheat, oats, corn, potato starch, and gum rosin totaled \$18,074,871 and export sales of flaxseed, grain sorghums, wheat, barley, corn, peanuts, cottonseed oil, dried eggs, gum rosin, dry edible beans, dry edible peas, potatoes, turkeys, and Mexican canned meat and gravy, totaled \$10,487,257.

Potatoes, nonfat dry milk solids, dried eggs, butter, and American Cheddar cheese were offered for donation under section 416 of the Agricultural Act of 1949. (Under this legislation, the commodities were made available free, at point of storage, to the following, in the priority named: First, school lunch programs; the Bureau of Indian Affairs; Federal, State, and local public welfare organizations for assistance of needy Indians and other needy persons; to private welfare organizations for assistance of needy persons within the United States; and to private welfare organizations for assistance of needy persons outside the United States.) Under Public Law No. 471, Eighty-first Congress, transportation costs could be paid by the CCC on 1949-crop potatoes under certain conditions.

Donations under section 416 were as follows: Butter, 8,070,000 pounds; nonfat dry milk solids, 25,459,000 pounds; cheese, 4,200,000 pounds; dried eggs, 6,386,000 pounds; and potatoes, 665,000 hundred-weight. Under Public Law No. 471, donations of potatoes totaled 624,000 hundredweight.

Under authority of the Commodity Credit Corporation Charter Act, as amended, 162,000 bushels of corn and 938 bales of cotton were bartered for a strategic material, while approximately 45,000 bales of cotton were bartered for 60,000 tons of Manchurian yellow soybeans, for use by the Department of the Army in civilian feeding operations in Japan.

The School Lunch Program

Approximately 7,800,000 children in 54,000 schools benefited from the national school lunch program during the year—a new high record. The Federal appropriation for the program was \$83,500,000. Purchases of food from local suppliers by participating schools amounted to \$181,000,000.

Marketing Research

Research was conducted during the year under approximately 75 projects in fields of work representing all phases of marketing, from the farm gate through the retail food store. The conduct and planning of the marketing research program were based upon the conviction that the gain from efficient farm production can be partially negated if the marketing system is not able to move farm products at costs that result in fair prices to consumers and fair returns to producers. Moreover, it is of little advantage to the farmer to observe careful production techniques and market a high quality product if that quality is subsequently damaged through inefficient operations or careless handling. A major objective of the current marketing research is to determine the practices that will increase efficiency at all levels of marketing, with consequent savings in cost and maintenance of quality.

Therefore, current research concerns such factors as assembling, handling, packing, packaging, processing, transporting, warehousing, wholesaling, retailing, and merchandising agricultural commodities and their products. Much of this research has been conducted in close cooperation with appropriate commodity trade groups and State experiment stations, and with other agencies of the Department. Research findings have been given broad dissemination to the extent essential for maximum utilization by those who need the results.

A few examples of research findings through work completed and under way show that PMA's marketing research program is producing practical results. About 50 controlled test shipments of prepackaged apples were made to 3 cities to determine, among other things, which sizes and types of packages were preferred. The work has indicated that small "consumer-size" units sell more readily than large-size units. Waste and spoilage losses and retailing labor costs in merchandising prepackaged apples were lower than for comparable bulk apples. An apple-bagging chute was developed in connection with this work, which greatly facilitates the packaging of apples in film bags. It is now being used commercially.

Studies have been made in more than 30 localities of needs for modern concentration, secondary, and terminal produce markets. Recommendations have been made to municipalities and local marketing authorities as to the type and size of facilities needed. Such markets are under construction or are planned in a number of cities.

Test measurements have been made of 5,000 heads of lettuce from western producing areas. On the basis of this information on the average-size lettuce heads, a new semisquare crate has been developed and tested. Preliminary test results have shown that the new crates not only suffer less damage in transit than standard crates, but also, because there is less internal pressure on heads packed in the new crate, there is considerably less bruising damage than is suffered by heads packed in the standard crate.

Studies have shown that moderate, controlled heating of eggs—a process called thermostabilization—makes eggs retain quality in storage better than oil-treated eggs.

An improved check-out counter has been developed for retail food stores. Tests have indicated that the new counter, when operated

by 1 man, handled 44 orders per hour at an average cost of 2.3 cents per order, as compared with the 1-man operated conventional check-out counter of 31 orders per hour at an average cost of 3.2 cents per order. The new-type stand, when operated as a 3-man unit, handled 68 orders per hour, 22½ orders per man-hour, at an average of 4.4 cents per order, while the conventional stand operated as a 4-man unit handled 64 orders per hour, 16 orders per man-hour, at an average cost of 6.3 cents per order.

Experimental 1-day classes, intended to acquaint retailers with efficient methods for preparing, merchandising, and caring for fresh fruits and vegetables, have indicated what such efforts may accomplish toward reducing losses, maintaining quality, and increasing sales of fresh fruits and vegetables. A survey of 1,881 retailers who had taken the experimental training indicated that 95 percent had been able to reduce spoilage and 96 percent had increased their sales of fresh fruits and vegetables. More than 18,000 retailers had taken the training by the end of the fiscal year. Furthermore, preliminary work had been started for comparable experimental training in the retailing of poultry products.

Marketing Regulation

Sugar consumption requirements under the Sugar Act of 1948, set initially at 7,250,000 short tons, raw value, were raised in September 1949 to 7,500,000 tons and remained at that level for the remainder of the year. Prices were stable and supplies adequate throughout the year. Wages for persons employed in the production, cultivation, and harvesting of sugar were maintained at levels established in 1947 in all areas except Puerto Rico and Hawaii. In Puerto Rico, wages were "tied" to prices of raw sugar, and wages decreased or increased with changes in sugar prices. In Hawaii, basic minimum wages of 78½ cents per hour were raised to 80 cents.

A total of 28 marketing agreement and order programs dealt with 21 different fruit, vegetable, and tree-nut products from 23 States. The estimated farm value of the commodities covered by the programs was \$750,000,000.

Federal orders regulating the handling of milk were in effect in 37 marketing areas at the end of the year. Hearings had been held and orders were pending for 7 other areas. About 152,000 producers, delivering approximately 18,000,000,000 pounds of milk valued at almost \$701,000,000, were affected by the orders in operation during the year.

At the end of the year, 308 stockyards were posted under the Packers and Stockyards Act, 4,679 livestock market agencies and dealers were registered, and 1,576 poultry sales agencies were licensed. Extensive investigations of practices at the Fort Worth and Kansas City stockyards and at the New York City Terminal resulted in corrective action being taken.

A total of 26,021 licenses were in effect under the Perishable Agricultural Commodities Act at the end of the year. Informal, amicable settlements numbered 1,169, with payments made totaling \$878,000. Formal orders were issued in 164 cases, the reparation awards totaling

almost \$178,000. Thirty-four licenses were automatically suspended and 5 were revoked by formal orders.

More than 102,000,000 pounds of agricultural and vegetable seeds offered for importation into the United States were tested under the Federal Seed Act. Actions taken under the interstate provisions of the act totaled 749. In 174 cases, no action was warranted; in 475 cases, warnings were issued; 46 cases were cited for hearings; in 12 cases seizures were recommended; and in 42 cases criminal actions were recommended which resulted in 18 court actions. Of the 13 criminal actions terminated, 8 were successfully prosecuted.

Marketing Services

At the specific request of Congress, a 5-year plan for the development and improvement of existing market news services was presented. The Senate Committee on Appropriations, after a study of the PMA plan, stated that "the initiation of new services and improvement of existing operations should be undertaken as the need arises and as available funds will permit. The committee believes that the financing of the services should be on a cooperative basis with the States concerned, with particular emphasis placed upon obtaining larger funds from State and local contributions."

A number of standards for grade were revised during the year and new standards developed for several commodities. This work was carried on under both the Research and Marketing Act of 1946 and the regular appropriation legislation.

Wide-scale grading, inspection, and classification activities were conducted as in previous years, much of the work being done in cooperation with State agencies. (The following 10 sections cover PMA activities as they relate to specific commodities.)

COTTON AND COTTONSEED

Cotton production in the United States totaled 15.9 million running bales in 1949, as compared with 14.6 million bales in 1948. The larger-than-expected crop, plus a carry-over of 5.3 million bales, meant extensive price-support operations throughout the marketing year, and made necessary the proclamation of marketing quotas and the establishment of acreage allotments for the 1950 crop.

Price-Support Operations

Upland cotton

Prices were quite stable during the early marketing season at levels a little above the loan rate of 29.43 cents per pound for Middling $1\frac{1}{2}$ -inch cotton at average location. Prices advanced to about 34 cents per pound at the end of June 1950, however. Major factors accounting for the increase in prices were: (1) Larger-than-expected domestic consumption and exports, which meant fairly heavy withdrawals from Commodity Credit Corporation loan stocks; (2) prospects for sharply reduced supplies in 1950-51; and (3) the general advance in commodity prices late in the season.

Commodity Credit Corporation loans were made on about 3,190,000 bales of upland cotton or 20 percent of the 1949 crop, as compared with 5,271,000 or 36 percent of the 1948 crop. The average loan rate for 1949 was 27.23 cents for Middling $\frac{3}{8}$ -inch cotton, which represented 90 percent of the August 1, 1949, parity price, and 29.43 cents for Middling $1\frac{1}{16}$ -inch. Producers redeemed about 252,000 bales of 1948-crop cotton and 2,000,000 bales of 1949-crop cotton. About 3,778,000 bales of 1948-crop cotton were pooled for producers' accounts on August 1, 1949, of which about 387,000 bales had been sold by the end of the fiscal year (June 30, 1950). Two cotton barter transactions, involving 46,000 bales of 1948-crop pooled cotton and critical strategic materials, were completed during the year.

American Egyptian Cotton

Loans were made on 3,518 bales of 1949-crop American Egyptian cotton at an average loan rate of 57.95 cents per pound, net weight, for grade No. 2, $1\frac{1}{2}$ inches, which represents 90 percent of the parity price for this quality as of August 1, 1949. Production of American Egyptian cotton in 1949 was 3,889 bales.

Cottonseed

Loans were made through December 31, 1949, on clean, safely stored cottonseed, having a moisture content of not more than 11 percent, at a rate of \$49.50 per ton. This rate reflected 90 percent of the parity price as of August 1, 1949. A little more than 7,000 tons of cottonseed were placed under loans, all of which were redeemed prior to maturity.

Because of difficulties in making the loan program fully effective and in order to check a decline in prices, an emergency purchase program for cottonseed was announced early in October. The purchase rate of \$46.50 per ton was based on the loan rate of \$49.50, the purchase rate being \$3 less than the loan rate to offset storage, transportation, and other costs which the producer had to assume under the loan program, but which he would not bear if the cottonseed were purchased.

From November 1, 1949, through February 15, 1950, a total of 810,000 tons of cottonseed was purchased. The initial outlay for this program was \$43,000,000, of which \$38,000,000 represented actual cost of cottonseed and was paid directly to producers. Ginners' fees, transportation, storage and handling charges, and other miscellaneous costs amounted to \$5,000,000. Through June 30, 1950, gross sales of cottonseed and cottonseed products had returned a little more than \$30,000,000. It was expected at the end of the fiscal year that if market prices for cottonseed products prevailing at that time continued, practically all of the investment in the emergency purchase program would be returned to CCC.

Surplus-Removal Operations

Cotton utilized by three firms under a cotton-for-insulation program approximated 1,500 bales during the fiscal year 1950, as compared with approximately 11,000 bales utilized by eight firms during the preceding 12-month period. The rate of payment was $2\frac{3}{4}$ cents per pound of cotton used for the fiscal year 1950; for the preceding 12-month period the rate of payment was $4\frac{1}{4}$ cents per pound.

Under a sales-for-export program, 2,600 bales were registered for export during the year. This program also has been approved for the fiscal year 1951.

(These programs were carried on under authority of section 32, Public Law No. 320, 74th Cong.)

Production Adjustment Operations

Following a determination by the Secretary of Agriculture on October 13, 1949, that the total prospective supply of cotton for the 1949-50 marketing year was substantially in excess of the normal supply, a national marketing quota of 11,733,750 bales for the 1950 crop was proclaimed by the Secretary, as required under the provisions of the Agricultural Adjustment Act of 1938, as amended. A national acreage allotment of 21,000,000 acres was established. In a national referendum held on December 15, 1949, for the purpose of giving eligible producers an opportunity to vote for or against marketing quotas for 1950, more than 89 percent of the 644,135 producers voting favored quotas.

Public Law No. 471, Eighty-first Congress, approved March 31, 1950, provided for increases in certain farm cotton-acreage allotments, for the release and reapportionment of unused farm allotments, and for the review of farm allotments.

Under this legislation, a substantial proportion of the approximately 1,217,700 farm acreage allotments that had been established were recomputed, nearly 60,000 appeals of allotments were heard by review committees, the total acreage allotted to farms increased to about 21,553,700 acres, and revised notices of the adjusted farm acreage allotments were sent to most producers before the season was too far advanced for the planting of cotton.

The 18,921,500 acres of upland cotton estimated by the Crop Reporting Board to have been in cultivation on July 1, 1950, was about 2,632,500 acres, or 12 percent less than the total acreage allotted.

The preparation of a statistical basis for the establishment of farm cotton acreage allotments for 1950 required the collection and tabulation of farm acreage history data covering the years 1945 to 1948 for approximately 1,250,000 individual cotton farms in about 1,000 counties. It was necessary to obtain producer reports of acreages of cotton, designated "war crops," other crops and land uses, and cropland on each cotton farm. County PMA committees then analyzed and adjusted the reported farm cotton and war crop acreages in order to reconcile the county cotton acreage totals with Crop Reporting Board figures and to determine that the reported war crop acreages for which credit could be allowed in establishing the base acreage for each State, county, and farm, were reasonable and in line with official acreages of these crops. After adjustments by the county committees, the acreage of war crops planted in lieu of cotton was determined for 1945, 1946, and 1947. This acreage became a part of the cotton acreage history for the farm.

Subsequently, a work schedule was set up which called for the final computation of all 1950 farm acreage allotments and the written notification of such allotments to be furnished farm operators prior to

December 15, the date of the national referendum. This made it necessary to formulate regulations, instructions, and forms and to compute State and county acreage allotments between August 29, 1949, the date of the approval of Public Law No. 272, Eighty-first Congress, and December 1, 1949.

Standardization Activities (Including Research)

The Ninth Universal Cotton Standards Conference was held in Washington on May 1 to examine and approve copies of the original Universal Standards. The standards were revised in 1946 and the first reserve set of 1946 was used for comparison in examining and approving 1,055 key boxes for use during the next 3 years. The conference was attended by about 30 delegates and observers from trade associations in foreign cotton-consuming countries and by about 60 representatives from organizations in the United States, comprising the principal producing, merchandising, and consuming phases of the industry.

Preparation of the key boxes was preceded by measurement of the color of about 12,660 samples of cotton as a basis for the selection of suitable material. The selection of material for the standards within a very narrow tolerance with respect to the color factor of grade, through laboratory measurements, greatly expedited the work of the conference.

Samples of cotton representing the various standard grades were assembled for use in studies of the foreign-matter content of the respective grades. Determinations had been made previously of the foreign-matter content of cottons used for the 1936 and 1946 grade standards. Cotton used in the 1950 standards will be compared with cottons for previous years.

To test stability of color, additional samples were placed in storage at four locations representing a variety of climatic conditions. Samples of previous years were measured for color and returned to storage.

An automatic color-measuring instrument was built to specifications developed by PMA and was given extensive practical testing. This instrument permits the measurement of the color of cotton samples at a rate approximately 15 times faster than was possible by the disk colorimeter. The new instrument requires less technical skill for its operation than the disk colorimeter—and the results, in terms of the grade standards, are available directly from the new instrument, thereby eliminating various calculations and conversions of data. Two publications describing this instrument and its use were prepared under the following titles: "New Automatic Colorimeter for Cotton," and "Color Measurements of Cotton."

Over 500 length-array tests were made in connection with the selection of suitable material for staple length standards. Length and length uniformity measurements by means of the fibrograph were initiated during the year on bales being considered for the staple length types.

Under a Research and Marketing Act project, data on cottonseed grading were collected for the period 1942 to 1946, from 31 percent of the oil mills, which accounted for 35 percent of the cottonseed processed. These data were analyzed with a view to relating the

official system of grading as accurately as possible to actual milling outturn. For the 5-year period, the theoretical yield of oil averaged 3.9 pounds per ton more than the actual yield, while the theoretical yield of meal and cake averaged 7 pounds less than the actual yield. The quantity of oil, based on actual yield in comparison with predicted yield, varied from -1.6 pounds to -5.6 pounds for individual years, whereas similar comparisons for the meal and cake yields varied from +5 pounds to +11 pounds.

Work begun under a Research and Marketing Act project during the previous fiscal year, to develop an electronic moisture meter to simplify the grading of small lots of cottonseed, was continued during the fiscal year 1950. Practical tests of the meter for use in connection with an interim short-cut method of grading seed will be made at several gins during the 1950 ginning season.

Investigation of methods for determining the oil content of cottonseed during the year included: (1) Dielectric measurement of oil-solvent mixtures; (2) dielectric measurement of dried seed; (3) measurement of electrical conductivity of oil-solvent mixtures; and (4) specific gravity measurement of oil-solvent mixtures.

Classing and Grading

Classification of 13,629,284 samples established a new all-time high record (table 1). Principally responsible for the increase from the previous year in total classifications was the popularity of free classing for farmers in cotton improvement groups organized under the Smith-Doxey Act. Classing under this service approximated 10,356,000 bales, or about 65 percent of the crop, as compared with about 8,100,000 bales, or 55 percent of the 1948 crop.

Certificates issued evidenced the grade of more than 4 million tons of cottonseed.

About 8,000 supervisory samples were received from licensees, representing 213,000 bales of linters.

Market Reports

Under authority of the Smith-Doxey Act, market news was furnished to 13,439 members of organized cotton-improvement groups. Numerous reports were issued on cotton quality, including a report on quality of cotton in the carry-over as of August 1, 1949; a report on quality of the 1948 crop showing the various quality factors by districts, States, and periods; and miscellaneous reports on cotton quality by ginning periods, districts, States, and the United States. Regular weekly reports on cotton market news were issued from Washington, Atlanta, Memphis, Dallas, and Bakersfield, and on cottonseed quality and prices from Atlanta, Memphis, and Dallas. Special weekly market reports were issued during the harvesting season from Atlanta, Memphis, and Dallas for the use of farmers in marketing their cotton. Regular weekly market reports on cotton linters were issued from Washington. The report entitled "Cotton Price Statistics" was issued monthly from Washington to show price information by months,

TABLE 1.—*Volume of cotton classed (not including samples classed for supervision purposes), fiscal years 1948-50*

Cotton classing under or for—	Cotton classed in fiscal year—		
	1948	1949	1950
Cotton Futures Act:	<i>Samples</i>	<i>Samples</i>	<i>Samples</i>
Original certifications	291, 211	151, 701	298, 720
Reviews	138, 520	92, 951	165, 678
Cotton Standards Act, public classing service, and miscellaneous ¹	1, 005, 096	1, 240, 357	1, 451, 524
Commodity Credit Corporation loan cotton	160, 668	1, 928, 765	496, 655
Economic Cooperation Administration		325, 401	620, 011
Federal Penitentiary, Atlanta, Ga.	12, 633	18, 528	25, 586
Smith-Doxey Act (act of April 13, 1937) ²	4, 309, 581	8, 066, 734	10, 355, 955
Grade and Staple Statistics Act	381, 931	494, 756	215, 155
Total classed by employees of Cotton Branch, PMA	6, 299, 640	12, 319, 193	13, 629, 284
Reported classed by licensed classers under Cotton Standards Act ³	4, 230, 849	5, 582, 470	2, 645, 684

¹ Includes classification under Government purchase and sales programs.

² Classification under this act is acceptable as a basis for Commodity Credit Corporation loans.

³ These figures include ordinary bale-by-bale classifications, samples classed in assembling cotton into even-running lots, and classifications of cotton previously assembled into even-running lots.

together with a summary of factors affecting the market during the month.

Price-Quotation Supervision

The Cotton Futures Act provides for the designation of certain spot cotton markets and for supervision of quotations in those markets. Now designated are Memphis, Charleston, Savannah, Augusta, Montgomery, New Orleans, Little Rock, Dallas, Houston, and Galveston. Plans were almost complete at the end of the fiscal year for designating Atlanta in the place of Savannah.

Cotton Testing Service

The Cotton Testing Service Act authorizes PMA to make fiber and spinning tests to determine the quality of cotton submitted for testing by other Federal and State research agencies and by private individuals and firms. During the year the regulations were revised to eliminate some tests that were not being used extensively, to incorporate new tests that have been developed, and to adjust the fees to bring them more nearly in line with the cost of the work.

Table 2 shows data with regard to testing work carried on by PMA during the fiscal year 1950.

TABLE 2.—*Fiber and spinning tests performed in connection with specified lines of work, fiscal year 1950*

Kind of test	Test under—			
	Research program of PMA	Other Federal and State research agencies	Service Testing Act	Total
	Number	Number	Number	Number
Ginning of test samples	759	196	12	967
Seed cotton fractionation	8,214	652		8,866
Fiber length (array)	618		114	732
Fiber length (fibrograph)	4,846	80	10,795	15,721
Fiber strength (Pressley)	4,693	81	21,989	26,763
Fiber fineness (micronaire)	4,111	56	3,725	7,892
Fiber maturity (micro-projector)	4,859	56	239	5,154
Fiber fineness and maturity (array)	143		118	261
Spinning tests	853	442	457	1,752
Fabric weaving and testing	162		22	184
Yarn strength, size, and appearance	175		70	245
Fabric tests	127		11	138
Shirley analyzer	729		130	859
Classification (raw cotton)	2,522		614	3,136
Moisture tests	17,358	600		17,958
Other tests	520	1,696	341	2,557
Total	50,689	3,859	38,637	93,185

Ginning and Packaging Research

Research on specific technical problems associated with conditioning, cleaning, ginning, and packaging processes as performed at cotton gins was carried on by PMA in cooperation with the Bureau of Plant Industry, Soils, and Agricultural Engineering of the Agricultural Research Administration. Work was done on the following projects during the fiscal year 1950.

Working models of a device for removing green bolls from roughly harvested seed cotton were tested during the year. This equipment operated satisfactorily and will be installed in commercial gins for final field testing during the next ginning season. These tests are expected to indicate whether any further adaptation will be required for satisfactory performance under commercial operating conditions.

A stick-removal device developed during the year was adapted for use with a conventional gin-stand feeder and was given preliminary tests. The equipment removed sticks and stems from seed cotton and facilitated gin operations, particularly by eliminating chokages. Further laboratory work, including the adaptation of the equipment for use with bur-extracting machines, will be undertaken prior to any field testing of this equipment.

A device termed the "recipro-cleaner" attachment was given preliminary testing, which indicated that the equipment removes about

three times more foreign matter from hand-picked cotton and two and one-half times more from machine-picked cotton than is accomplished by standard gin-stand equipment. The device will be given extensive laboratory tests during the next ginning season.

Previous research indicates that the most effective cleaning of seed cotton is accomplished when the moisture content of the fiber ranges between 4 and 5 percent, whereas most effective ginning and packaging appears to be accomplished when the moisture content ranges from 6.5 to 7.5 percent. A number of devices for adding moisture were tested during the year and one, by means of which moisture is added in the form of steam in connection with a wetting agent, appears to have promising possibilities. A pilot model will be constructed and will be given extensive laboratory tests during the next fiscal year.

Tests of equipment for the extraction of foreign material from lint in the process of ginning between the gin saws and the bale press were completed. The tests showed conclusively that properly operated lint cleaners previously developed do not adversely affect the spinning value of cotton.

Research in the economic aspects of ginning was conducted to provide information with respect to the costs and efficiency of ginning services performed by gin establishments employing various types and combinations of ginning equipment. Area studies were made in the lower Rio Grande Valley of Texas, High Plains area of Texas, the Delta area of Mississippi, Pecos and Rio Grande Valleys of New Mexico and west Texas, and in south Louisiana.

(The following research related to ginning was carried on under authority of the Research and Marketing Act of 1946.)

Research was carried on to develop entirely new techniques for cleaning foreign matter from seed cotton prior to ginning. Principles explored under a research contract with the Battelle Memorial Institute included high-frequency vibration, electrostatic attraction, infrared irradiation and preferential heating, and aerodynamics. Application of aerodynamic principles to the cleaning of cotton appeared to be the most promising avenue and received the most attention from the contractor. A small-scale turbo cleaner, being modified at the end of the year to eliminate roping of the fibers, proved to be about 90 percent effective in the removal of foreign matter from seed cotton.

A number of tests were made on the conditioning of cottonseed for milling and planting purposes. The tests showed that from the standpoint of all considerations a drying temperature of 200° F. with a low air volume and 6-minute exposure provided satisfactory results. Further moisture removal was effected by evaporation during a 36-hour post-drying cooling period. Drying tests by infrared heat or desiccated air were less promising than the hot-air drying method.

Preliminary work was carried on with reference to ginning problems peculiar to the low-humidity areas of the western cotton-producing States. Tests indicated that for the relatively fine-fibered cottons being produced in the West the use of elaborate cleaning processes adversely affects the quality of the ginned lint and that most of the cotton could be ginned to better advantage if its moisture content could be increased prior to the ginning process.

Marketing Research

Information collected during the year showed that cotton growers in the United States spent about \$173,000,000 for ginning and packaging the cotton harvested during the 1949-50 season. The average charge for ginning and wrapping upland cotton in 1949-50 was \$10.47 per 500-pound gross-weight bale, or about 82 cents more than the average charge in 1948-49. Rates charged in 1949-50 for services required in the physical handling of cotton bales were approximately the same as those in 1948-49. Charges for storage in both 1949-50 and 1948-49 averaged 34 cents per bale per month. Average rates for compressing cotton bales in 1949-50 were \$1.07 per bale for standard-density compression and \$1.29 per bale for high-density compression.

Charges per standard-weight bale for ginning American Egyptian cotton averaged \$18.20, as compared with \$17.90 in 1948-49.

Substantial progress was made in perfecting a timer-relay system for controlling and integrating the operation of recently developed automatic sampler units. Significant improvements also were made in equipment for pressing and packaging of the sample.

Evaluation of changes in marketing practices at producers' local markets resulting from use of Government classing and market news services by growers indicated that, while much improvement has been made during the last decade, growers in many markets continue to sell cotton under relatively unfavorable conditions.

An appraisal of procedures, practices, and pricing methods utilized in the marketing of cotton at major spot markets was under way at the end of the year.

The series of tests, begun in 1946, on fiber and spinning qualities of pure variety cotton produced annually in crop-improvement areas was continued in the fiscal year 1950. A study of textile-mill practices in the procurement of raw cotton of types and qualities desired also was continued.

Various studies were made to correlate all the measurable physical properties of cotton fiber and other factors of quality in raw cotton with processing efficiency and with the quality of the products manufactured from the cotton. Measured statistically were the relationships of fiber properties to yarn strength, yarn appearance, neps in cotton products, ends down in spinning, and spinning performance.

A belt-wide study of the marketing of cottonseed indicated the need for more extensive use of seed scales in determining weights of cottonseed sold by farmers, a practical system of grading for use in farmer-ginner transactions in cottonseed, and a more adequate system of cottonseed price information. A pilot study of cottonseed prices was made during the year for the purpose of investigating the feasibility of conducting a Belt-wide study of cottonseed prices.

(The following work relating to marketing was carried on under authority of the Research and Marketing Act of 1946.)

A report published during the year summarized data with respect to the qualities (fiber length, fiber length uniformity, tensile strength, fineness, maturity, and color value), as well as classification for grade and staple length of cotton used in each of 10 products.

Preliminary work was initiated on a project aimed at determining the suitability of different varieties of cotton for use in specific end products.

DAIRY PRODUCTS

Production of milk during the fiscal year 1950 totaled about 120,-480,000,000 pounds as compared with 117,616,000,000 pounds during the previous 12-month period. Prices received by farmers for milk and butterfat were relatively low during the year, the average farm price for milk sold in June 1950 being down 26 percent from June 1948, and butterfat prices 28 percent. This situation not only made price support for manufacturing milk and butterfat necessary, but also increased dairy farmers' interest in milk marketing orders.

Price Support

The price-support program, begun in February 1949 to support producers' prices for milk and butterfat at 90 percent of parity as required under the Agricultural Act of 1948, was continued through December 1949. In July 1949, additional steps were taken to strengthen the program through offers to purchase American Cheddar cheese and by making effective at that time the seasonal increase in the purchase price for butter originally scheduled for September 1, 1950.

On January 1, 1950, price-support operations went under the provisions of the Agricultural Act of 1949, which requires that prices to producers for milk and butterfat shall be supported through loans on/or purchases of, dairy products, at such level between 75 and 90 percent of parity as is necessary to assure an adequate supply. In accordance with this requirement a new program was instituted providing for support prices to producers for manufacturing milk and butterfat from January 1950, through March 1951, at a national average price of approximately \$3.07 per hundred pounds for manufacturing milk of 3.95 percent butterfat (yearly average test) and approximately 60 cents per pound for butterfat. The support prices were equivalent to about 79 percent of the United States average parity-equivalent prices for manufacturing milk, and represented about the same dollar-and-cents support levels as under the 1949 program.

In carrying out the program, the Department offered to buy in carlots at any location in the United States the following dairy products at the indicated f. o. b. prices:

Product	Price Cents per pound	Dollars per case
Cheddar cheese, U. S. Grade A or higher	31	
Butter, U. S. Grade A or higher	60	
Butter, U. S. Grade B	58	
Nonfat dry milk solids, spray process, U. S. Extra Grade	12½	
Nonfat dry milk solids, roller process, U. S. Extra Grade	10½	
Evaporated milk	3.95	

Purchases under the price-support program during the year included 202.8 million pounds of butter, 81.8 million pounds of cheese, and 457.6 million pounds of nonfat dry milk solids, of which 305.8 million

pounds were spray type and 151.8 million pounds were roller type. Although these purchases were equivalent to only a small percentage of total milk production during the year, the principal problem at the end of the year was the disposal of stocks still on hand.

All products were available for sale during the year at prices which would not interfere with the program, but only limited quantities of butter and cheese were sold in the domestic market during the low-production winter months. Additional quantities of butter and dry milk were distributed for use in the school lunch and other domestic distribution programs and large quantities of dry milk were exported for foreign relief. Export markets, generally, were less favorable than during the previous year because of increased production of milk and dairy products in Europe and the principal exporting countries.

In the last few months of the fiscal year, dairy products were made available to Government and welfare agencies under section 416 of the Agricultural Act of 1949, but only limited supplies, principally nonfat dry milk solids for foreign relief, had been taken up to the end of the year. Distribution of stocks of dairy products (including sales and donations), through all outlets, included 35 million pounds of butter, 12.3 million pounds of Cheddar cheese, and 241.3 million pounds of nonfat dry milk solids. As of June 30, 1950, available stocks for disposition included 176 million pounds of butter, 70 million pounds of cheese, and 342 million pounds of nonfat dry milk solids.

Marketing Agreements and Orders

Substantial expansion of the milk marketing agreement and order program was noted. Federal orders regulating the handling of milk (authorized by the Agricultural Marketing Agreement Act of 1937, as amended) were in effect in 37 marketing areas, as compared with 30 market areas covered by such orders in the fiscal year 1949. As of June 30, 1950, hearings had been held and orders were pending for 7 other marketing areas. In addition, a large number of organizations, operating in 16 marketing areas, inquired into the possibility of marketing orders for those areas. Approximately 152,144 producers, delivering about 18 billion pounds of milk, valued at about 701 million dollars, were directly affected by the orders in operation during the year.

The 7 additional areas in which orders were made effective were: Knoxville, Tenn.; Rockford-Freeport, Ill.; Lima, Ohio; Springfield and Worcester, Mass.; and Oklahoma City and Tulsa, Okla. Orders pending at the end of the year were for: Suburban St. Louis and Springfield, Mo.; Akron, Ohio; Detroit, Mich.; Memphis, Tenn.; Milwaukee, Wis.; and southern Illinois.

A total of 39 public hearings (including 1 reopened hearing) was held to consider new orders or amendments to existing orders. As a result of these hearings, or of hearings held the previous year, 24 amending orders were issued. Eight orders were issued to suspend parts of orders.

Three public meetings were called by market administrators pursuant to requirements of the Administrative Procedure Act to consider proposed changes in their rules and regulations under various milk orders. Three amendments to the market administrators' rules and regulations were issued.

Sixteen petitions were filed by handlers for review of order provisions or market administrator regulations under section 15 (a) of the act, and 21 decisions or dismissals with respect to petitions filed during the year or pending from former years were issued by the Judicial Officer. On June 30, 1950, action was pending on 31 petitions.

Seven court cases were filed by handlers to appeal section 15 (a) decisions and four by the Government to enforce order provisions. Action was completed on 17 cases commenced during the year or carried over from former years. On June 30, 1950, action was pending before the courts in 15 cases.

Agricultural Supply Program

PMA participated in the development of programs for the procurement of dairy products for export to European countries under ECA and to areas under military occupation. Except for 800,835 cases of evaporated milk purchased for shipment to Greece, requirements were met from stocks acquired under the price-support program. Information was assembled and analyzed on current and prospective supplies and price conditions for various dairy products for use in the ECA program. Approximately \$10,000,000 was authorized by ECA for the procurement of dairy products in the United States. Under Public Law No. 155, Eighty-first Congress (which provides authority for restricting imports of certain fats and oils, including butter, and rice and rice products) all imports of butter into the United States were stopped in order to facilitate orderly liquidation of surplus items acquired under the price-support programs.

School Lunch Activities

The Department purchased 6,400,000 pounds of nonfat dry milk solids, 261,000 pounds of natural Cheddar cheese, and 13,815,000 pounds of process American cheese for distribution primarily to schools participating in the school lunch program. In addition, 19,350,000 pounds of nonfat dry milk solids and 19,056,000 pounds of butter were transferred from CCC stocks and repackaged for distribution to these schools and other outlets authorized to receive commodities under section 32 of Public Law No. 320, Seventy-fourth Congress, as amended. The products furnished the school lunch program supplemented supplies of milk and dairy products purchased by local school agencies with Federal and State funds made available to them under the National School Lunch Act.

Market News

(Both dairy and poultry market news services are handled by PMA's Dairy Branch.)

Dairy and poultry market news services were established during the year at Birmingham, Ala.; Fresno, Calif.; Little Rock, Ark.; and Louisville, Ky., under cooperative agreements with the respective States. The addition of these field offices brings the number now assembling and releasing local information to 32. In addition to the establishment of services at the new offices mentioned above,

existing services were expanded in a number of markets. Approximately 45,000 copies of dairy and poultry market reports are distributed daily by the various field offices.

Efforts to bring about acceptance of official terminology, particularly with respect to new official grades and classes, continued throughout the year. This has been a difficult and slow process because of careless use of trade terms and adherence to terms that have become obsolete.

PMA is cooperating actively with 15 State agencies and has overall cooperative market agreements in operation with several other States whereby dairy and poultry market news assembled by PMA is disseminated through State outlets. Cooperative agreements have made it possible to develop market news in areas where it would otherwise have been impossible, since in each instance the State contributes to the cost of the within-State projects.

Standardization

The increased demand for high-quality dairy products developed great interest in the dairy industry in grading and quality-improvement work. Added emphasis has, therefore, been placed on the development of quality standards for grades of milk and milk products. In this connection, the following activities were undertaken.

United States Department of Agriculture Sediment Standards for Milk and Milk Products were promulgated.

Literature reporting technical research and other information relating to the quality of cream for buttermaking was reviewed and it is expected that a list of references will be made available to the industry.

A study and tabulation were made of grades of cream now being used in the various States.

A preliminary draft of Tentative United States Standards for Grades of Cream for Use in the Manufacture of Butter was submitted to interested official and industry sources for comment and suggestions.

A new, more accurate, and quicker method of determining scorched particles in roller-process nonfat dry milk solids through disc filtration was developed.

Standards for nonfat dry milk solids and dried whole milk were formulated and discussed with the American Dry Milk Institute.

The Tentative United States Standards for Grades of American Cheddar Cheese were revised to formulate Official United States Standards for Grades of American Cheese, including types known as Cheddar cheese and stirred-curd cheese. After changes recommended by the National Cheese Institute and the industry they were submitted for publication in the Federal Register.

A revision of the Preliminary Draft of Tentative United States Standards for Grades of Milk for Use in the Manufacture of Dairy Products, based upon comments received from representatives of State colleges, State departments of agriculture, industry, and trade organizations, is being prepared for publication in the Federal Register.

Information is being assembled to show whether or not present butter grades should be revised.

Assistance was given in the preparation of Federal Specifications for fresh cream, fresh milk, sterilized cream, ice cream, sweetened condensed milk, and American cheese.

Inspection and Grading

Grading and inspection activities of PMA were stepped up during the year, reflecting the sharp increase in the volume of dairy and poultry products purchased under price-support programs. Utilization of the services for commercial purposes also increased over use during the previous year and it is expected that the trend will continue.

Table 3 shows the scope of inspection and grading of dairy and poultry products in the fiscal years 1949 and 1950.

TABLE 3.—*Comparative inspections and/or gradings of dairy and poultry products, fiscal years, 1949 and 1950*

Commodity	Unit	Inspections in fiscal year—	
		1949	1950 ¹
Butter	Pounds	354,043,414	556,682,931
Cheese	do	207,225,358	210,055,063
Eggs	Cases	13,157,032	12,742,579
Poultry (shipping point and terminal market).	Pounds	191,598,011	245,488,113
Dressed poultry (inspected for condition and wholesomeness).	do	306,947,118	388,422,446
Live poultry	do	2,836,964	3,227,391
Turkeys (dressed)	do	101,138,108	216,741,913
Frozen eggs	do	40,531,495	19,473,420
Dry milk	do	509,291,115	768,745,663
Evaporated milk	Cases	3,751,298	1,423,813
Dried eggs	Pounds	120,073,665	179,951,067
Processed eggs	do	475,014,107	449,306,360

¹ Partly estimated.

Activities Under the Research and Marketing Act

A report entitled "The Pricing of Surplus Milk in the Chicago Market" was published during the year.

A continuing study of changes in market outlets for milk and cream sold by farmers, giving current data for 20 markets, is being published monthly.

A preliminary report was prepared in connection with the study of margins in distributing milk and milk products, based upon a pilot study of sales and price data from handlers in the Duluth-Superior market.

Work is still in the exploratory stage in connection with the study of the effect on producer returns and marketing margins of basing

prices paid for dairy products and for milk on central market quotations for butter and cheese.

Part of the field work has been completed in a study of the yield of dairy products from a unit quantity of milk. The purpose of this study is to develop more accurate conversion factors for the formula pricing of producer milk.

A report entitled "The Philadelphia Milk Supply" is being published as a result of a study in that city of methods of improving supply and marketing conditions in fluid milk.

Reports are being prepared on the history and analysis of Federal orders in the St. Louis and Duluth-Superior markets.

The first phase of a Nation-wide study of municipal and State health regulations with respect to milk was completed. This work is being conducted under a contract between the Department and the National Academy of Sciences. The second phase of the project is an intensive study of a limited number of jurisdictions and the comparison of the effects of the different types of health regulations in these jurisdictions upon the quality of milk. The Department has authorized the National Academy of Sciences to continue with the second phase of the work.

FATS AND OILS

Supplies of peanuts were abundant during the year and price-support operations were continued. As required under the Agricultural Act of 1949, a program to support prices of tung nuts was initiated. Import controls were effective on fats, oils, and oil-bearing materials.

Price Support

Peanuts

Peanuts from the 1949 crop were supported at 90 percent of the parity price as of August 1, 1949. Base grade support prices were as follows: Virginia type containing 65 percent sound mature kernels, \$199 per ton; runner type containing 65 percent sound mature kernels, \$187 per ton; Spanish and Valencia types containing 70 percent sound mature kernels, \$204 per ton west of the Mississippi River and \$209 per ton east of the Mississippi River. Premiums and discounts were established for other grades.

The price-support program was implemented by purchases from producers through CCC receiving agencies, and CCC contracts with shellers—the shellers agreeing to pay producers not less than support prices, and the CCC agreeing (1) to purchase at support prices any inventories of farmers' stock peanuts that shellers were unable to sell commercially, and (2) to purchase No. 2 shelled peanuts from the shellers. All but two operating peanut shellers signed such contracts. No producer loans were made, although loans were available.

Purchases of 1949-crop farmers' stock peanuts totaled 74.5 million pounds, of which approximately 33.7 million pounds were sold for edible purposes and 39.2 million pounds were sold for domestic crushing, leaving 1.6 million pounds in inventory on July 1, 1950.

As of June 30, 1950, approximately 456.9 million pounds of No. 2 shelled and oilstock peanuts of the 1949 crop had been purchased, of which 382.3 million pounds were sold domestically for crushing,

and approximately 74.6 million pounds were sold for export for crushing.

In addition, about 29 million pounds of No. 2 and oilstock peanuts of the 1948 crop were purchased and disposed of.

At the end of the year a price-support program for the 1950 peanut crop had been announced. The new program includes provisions for bandling peanuts produced on excess acreage as provided by Public Law No. 471 of the Eighty-first Congress. This legislation provides that producers may grow and pick or thresh peanuts from an acreage in excess of their farm allotments without affecting their eligibility for price support at 90 percent of parity on peanuts produced on allotted acreage, if the total picked and threshed peanut acreage for a farm in 1950 is not greater than the 1947 picked and threshed acreage for the farm, and if the peanuts produced on the acreage in excess of the allotment are delivered to agencies designated by the Secretary of Agriculture. The price to be paid producers for peanuts so delivered will be the equivalent of the prevailing market value of peanut oil and meal, less the estimated storage, handling, shelling, and crushing costs. The law further provides that if there is a demand for 1950-crop oil peanuts of any type for edible use and the Secretary declares such type in short supply, the excess peanuts of such type purchased at oil prices shall be sold at not less than 105 percent of the support price for edible peanuts, plus reasonable carrying charges. If such sales are made, the profits realized are to be prorated among the producers delivering the excess peanuts to the designated agencies.

Tung nuts

Under the Agricultural Act of 1949, beginning with the 1950 crop, tung nuts are required to be supported at from 60 to 90 percent of parity. Price support for the 1949 crop was discretionary with the Secretary of Agriculture. Price support for both the 1949 and 1950 crops was announced at 60 percent of parity. The 1949 crop was supported through purchase agreements under which 11,463,000 pounds of tung oil and 1,748 tons of tung nuts were covered. Producers had the option under the 1949 program of delivering nuts on or before March 31, 1950, but no tung nuts were offered. Producers who signed purchase agreements covering tung oil had a 30-day period ending October 31, 1950, during which to notify county committees of their intentions to deliver tung oil. Details of the 1950-crop support program had not been announced at the end of the fiscal year.

Soybeans

In view of high prices for soybeans toward the end of the fiscal year, when loans and purchase agreements would mature, stocks held by the Department were insufficient to require a crushing program.

Flaxseed and linseed oil

Because linseed oil can be safely and economically stored, approximately 13.4 million bushels of the Department's 25-million-bushel stock of flaxseed were converted to 272.1 million pounds of linseed oil by selling the seed and purchasing the oil at negotiated prices. Through such operations and through purchases of linseed oil under processor agreements, the Department had acquired by the end of the

fiscal year approximately 583.5 million pounds of linseed oil. About 16 million pounds of linseed oil were sold during the year, of which 2.6 million pounds went to domestic buyers and 13.4 million pounds were sold for export, principally to Germany.

Cottonseed and cottonseed oil

By June 30, 1950, approximately 646,184 tons of cottonseed were under crushing contracts. Of the total cottonseed oil acquired during the fiscal year, approximately 119 million pounds were sold; 83.5 million pounds were sold domestically, of which 3.2 million pounds went to Canada, and 35.5 million pounds for export, of which 28.8 million pounds went to Germany and 6.7 million pounds to Japan.

Supply Programs

Supply procurement of fats and oils was accomplished by open market purchases or from CCC stocks. Purchases totaled 212,258,000 pounds of fats and oils, made up as follows: Menhaden fish oil, 11,555,000 pounds; coconut oil, 683,000 pounds; fully refined cottonseed oil, 1,120,000 pounds; hydrogenated soybean oil, 22,170,000 pounds; crude soybean oil, 150,458,000 pounds; edible tallow, 3,973,000 pounds; inedible tallow, 21,288,000 pounds; and peanut oil, 1,011,000 pounds. The products went to the United States Army and to Germany, Trieste, Austria, and Greece.

Under sections 112 (e) and 112 (f) of the Foreign Assistance Act of 1949, approximately 62.2 million pounds of peanuts were shipped to ECA countries; 57.4 million pounds to Austria and 4.8 million pounds to Norway. A contract also was entered into for shipment of approximately 10.1 million pounds of linseed oil for the Federal Republic of Germany. Both of these commodities were shipped through the use of section 32 funds.

Purchases for the National School Lunch Program during the year consisted of approximately 8,000,000 pounds of peanut butter. Although no unfilled requirements for this program were on hand at the end of the year, it is expected that additional purchases will be made during the 1950-51 school year.

Import Control

Import controls were in effect on fats, oils, oil-bearing materials (and rice and rice products) under authority of Public Law No. 155, Eighty-first Congress. These controls were effected through the Agriculture-Import Order, formerly War Food Order 63, which was completely rewritten with the objective of facilitating orderly liquidation of stocks of temporary surpluses owned or controlled by the Government. During the year the following commodities were added to the list of controlled commodities: Peanuts (blanched, roasted, prepared, or preserved), peanut butter, rice starch, soybeans, and soybean oil. Commodities removed from the list were edible and inedible olive oil. Public Law No. 590, Eighty-first Congress, approved June 30, 1950, extended the import control authority until July 1, 1951, but exempted coconuts and coconut products, including copra and coconut oil, from control.

Peanut Marketing Quotas

A national marketing quota of 643,000 tons for the 1950 peanut crop was proclaimed by the Secretary of Agriculture on November 30, 1949. The quota represented the quantity of peanuts equal to the average quantity harvested for nuts during the 5 years, 1944-48, adjusted for current trends and prospective demand. In terms of the normal yield of 665 pounds per acre, the national quota resulted in an acreage of 1,933,835.

However, in accordance with Public Law No. 272, Eighty-first Congress, the national acreage allotment was set at 2,100,000 for the 1950 crop. Public Law No. 471, Eighty-first Congress, provided that no State allotment should be reduced by a percentage larger than the percentage by which the 1950 national acreage allotment was below the 1949 acreage allotment. The additional acreage required to provide such minimum State allotments brought the national acreage to 2,200,194 acres for 1950, as compared with a 1949 national allotment of 2,628,970 acres.

Activities Under the Research and Marketing Act

Five work projects were under way during the year as follows:

1. Effects of New Oilseeds and Fats and Oils Processing Techniques on the Industry, Market Outlets, and Returns to Growers. Work during the year was confined to the development of basic information required for further analysis, but a report, showing, for the country as a whole, a decline in cottonseed production of one-third from 1928-32 to 1943-47 was released. A study of cottonseed oil mill crushing capacity as compared with seed supply showed that while mill capacity actually declined by about 14 percent, it increased almost 28 percent in relation to seed supply. Under a contract with the Texas Engineering Experiment Station, PMA developed blueprints for a model hydraulic mill and substantial progress was made on the screw-press and solvent models. At the end of the year for crushing cottonseed, an analysis showing differentials in prices received by mills for cottonseed products in 73 geographic areas of the Cotton Belt was being made.

2. Improvements in Marketing Facilities, Equipment, and Methods for Storage of Oilseeds and Their Products. A report has been prepared dealing with the cash costs of farm storage in marketing soybeans. Studies are nearly complete on effects of changes in quality during storage on the marketing of soybeans, types and costs of storage structures, handling and conditioning facilities, and market factors affecting farmers' returns from storage. The final report of this investigation will develop the possible economic desirability of changes in producers' marketing schedules to take better advantage of usual increases in soybean prices from time of harvest to late spring.

3. Development of New and Improved Methods for Grading Oilseeds and Oilseed Products and Analysis of Relationships of Oilseed Grades to Outturn and Quality of Oilseed Products. (This project so far has been confined primarily to soybeans, but will be extended to cottonseed and peanuts.) Findings to date are incorporated in a report entitled "Marketing Study of the Oil Content of Soybeans

as Related to Production Areas and Climate," which was in the process of publication at the end of the year. During the coming year it is intended to relate outturn value to soybean characteristics, including grade factors, to geographical location, and, as far as practicable, to varieties. This is expected to clarify further the completed study on the geographical influences on the composition of soybeans.

4. Development of New and Expanded Market Outlets for Oilseeds, Fats and Oils, and Their Products. (Projects are now in operation on peanuts and edible and inedible animal fats.) A contract has been entered into with the Georgia Agricultural Experiment Station to process, package, and market some of the new edible peanut products that have been developed there. A preliminary report on lard, covering production methods as related to quality and storage problems, is being prepared. A comparison of the uses of lard and other shortenings is in progress. A study of the household consumers' market for cooking fats, including quality tests of such fats, is being made in cooperation with the Bureau of Agricultural Economics. Negotiation for contracts are being made for surveying retail marketing practices for edible and inedible fat products. This study should be completed during the next fiscal year.

5. Analysis of Marketing Methods and Practices for Oilseeds and Oilseed Products in relation to Marketing Costs and Margins. (Projects are in operation on cottonseed products and on tung nuts and their products.) A preliminary report entitled "Distribution of Marketing and Processing Costs of Cottonseed-oil Mills, 1947-48," was published during the year. A survey of tung oil mills is under way, but because of their small number, a statistical study is difficult; however, comparisons are being made with the processing of other oilseeds.

FRUITS AND VEGETABLES

Expansion of marketing agreement and order programs, and efforts to relieve heavy surpluses of potatoes, fresh and dried deciduous fruits, and tree nuts, highlighted the activities of PMA in the fruit and vegetable field during the fiscal year.

Marketing Agreement and Order Programs

Increased interest and expanded activity in marketing agreement and order programs continued through the 1950 fiscal year. These programs present an important means of maintaining orderly marketing conditions and increasing returns to growers. They are operated by members of the industry through committees selected from nominations of growers and handlers and they provide an important vehicle for industry self-help.

During the year, 28 marketing agreement and order programs dealt with 21 different fruit, vegetable, and edible tree nut products from 23 different States. The estimated farm value of the commodities covered by the programs was \$750,000,000.

Nine potato marketing agreement and order programs were in effect as follows: Idaho and Malheur County, Oreg.; Colorado; California-Oregon; North Central States (Michigan, Wisconsin, Minne-

sota, and North Dakota); South Dakota; Virginia-North Carolina; Maine; and Washington. The New Jersey program became effective in April 1950. Long Island, California, and the Maryland-Delaware area voted against programs in referendums held during the year. Five other referendums are scheduled to be held during the early part of the coming fiscal year.

Marketing agreement and order programs were in effect during the year for the following citrus and deciduous fruits: Tokay grapes, California; peaches, Colorado; peaches, Georgia; Bartlett pears, plums, and Elberta peaches, California; winter pears, Oregon, Washington, and California; grapefruit, California and Arizona; lemons, California and Arizona; oranges, grapefruit, and tangerines, Florida; oranges, California and Arizona; peaches, Utah; Beurre Hardy pears, California; and fresh prunes, Oregon and Washington. Marketing agreement and order programs regulating filberts, pecans, walnuts, dried prunes, raisins, and hops were operated during the year, and a program was being developed for almonds for the coming year. A preliminary draft of a marketing agreement and order was prepared for apples in Oregon and Washington, and programs were discussed with growers and handlers of cranberries, Illinois peaches, California midseason table grapes, Oregon-Washington-Idaho prunes, and Washington apricots, cherries, peaches, and Bartlett pears.

A marketing agreement and order program covering peas and cauliflower from the San Luis Valley of Colorado was in operation. A proposed amendment to the program, to include cabbage and make changes affecting peas and cauliflower, did not secure the necessary two-thirds vote to become effective. Inquiries were received during the year concerning programs for Florida celery, Louisiana sweet-potatoes, and Colorado onions.

Regulation

Perishable Agricultural Commodities Act, Produce Agency Act, and Export Apple and Pear Act

By an amendment approved June 15, 1950, of Public Law No. 554, Eighty-first Congress, the Perishable Agricultural Commodities Act was changed to provide for increased license fees and for making the money received from such fees available for administration of that law, the Produce Agency Act, and the Export Apple and Pear Act. In effect, the legislation set up a revolving fund in the place of an annual appropriation for carrying out the three laws. It is anticipated that this new system will make possible expansion of the regulatory work and more prompt and effective handling of complaints and field investigations under the laws.

A total of 6,450 licenses were issued during the fiscal year under the Perishable Agricultural Commodities Act, which is designed to prevent unfair trade practices and promote more orderly marketing of perishables. At the end of the year, 26,021 licenses were in effect, as compared with the 25,659 in effect on June 30, 1949. Complaints of violations during the year numbered 2,732. Informal amicable settlements were effected in 1,169 cases. Payments made in connection with these settlements totaled \$878,418. Formal orders were issued in 164 cases, the reparation awards totaling \$177,630. Due to

failure to pay reparation awards or to file appeals 34 licenses were automatically suspended by operation of the law. Five licenses were revoked by formal orders, but none were ordered suspended. There were two injunctions against dealers operating without valid licenses.

Under the Produce Agency Act, 32 complaints were received, of which 27 were personally investigated. There were no convictions under the act during the year. Since most complaints involving violations of the act in connection with fruits and vegetables are handled under the Perishable Agricultural Commodities Act, only complaints of consignment transactions in fruits and vegetables filed more than 9 months after the cause of action accrued and complaints involving dairy and poultry products and other farm products are handled under the Produce Agency Act.

Very little enforcement work was necessary under the Export Apple and Pear Act during the year.

Standard Container Acts

Activity under the Standard Container Acts of 1916 and 1928 developed that of a total of 310 containers (1,622 samples) examined during the year, 86, or 28 percent, required correction. During the year tests were made of sample containers from 113 factories. There are at present 205 factories operating, making, or equipped to make 811 containers subject to the provisions of the acts. Certificates of approval were issued in 51 instances, indicating that efforts are being made by the basket industry to provide more suitable containers for fresh fruits and vegetables.

Market News

Market news service was available during the year from 24 permanent offices, exclusive of Washington, D. C., and 29 seasonal shipping point offices. More than 11,000,000 individual reports were issued during the year, in addition to the broad distribution of market news through newspapers, radio stations, telephone, telegraph, and direct teletypewriter.

New funds were appropriated by Congress to establish Federal-State offices at Birmingham, in cooperation with the Alabama Department of Agriculture, and at Little Rock in cooperation with the Institute of Science and Technology of the University of Arkansas. In addition to the federally operated offices, several States conducted fruit and vegetable market news services under Federal-State cooperative agreements, supplementing the Federal service and providing a much broader coverage. During the year, such agreements were maintained with 28 States and the Territory of Hawaii.

Daily reports covering carlot shipments by State of origin on 45 commodities were prepared and released by the Washington, D. C., office. During 1949 this service covered shipments of 785,209 car-loads moving by rail and boat. These daily reports were consolidated into weekly comparative reports and further into an annual report showing shipments by commodities, States, and months. State summaries were compiled on an annual basis, showing carlot shipments by commodities, months, counties, and billing stations, and were further condensed into a single summary for the United States, showing movement in each State from principal shipping points.

Unloads of major, selected fruits and vegetables in 100 United States and 5 Canadian cities were compiled and released currently each month through market news shipping area offices. Truck shipments on a very few commodities were reported during the year in the few sections where it was possible to develop a means of collecting the information during the time seasonal offices were in operation.

As in past years, the Washington office issued weekly market reports on peanuts and semimonthly reports on honey.

Price Support

Irish potatoes, 1949 crop

Price-support operations for the 1949 crop of Irish potatoes began in the spring of 1949 and purchase and disposal activities under the program were in progress during the entire 1950 fiscal year. During this period PMA acquired a total of about 46,394,000 hundredweight of potatoes at a commodity cost of \$81,808,000. The single support price for all eligible grades of potatoes at a level reflecting 60 percent of parity resulted in a much larger proportion of the surplus purchases being of lower grades than in former years.

As in other recent years, a supplemental loan program was made available to potato growers in late-producing States. The quantity of potatoes placed under loan was much smaller than in previous years, with the total value of loans amounting to \$8,600,000 as compared with \$29,600,000 in 1949. Probably accounting for this decline is the fact that the 1949 loan rate averaged only about 75 cents per hundredweight, which many growers might have felt did not justify the encumbrance of a CCC loan.

Table 4 contains high lights of acquisitions, disposals, and costs connected with 1949 price-support program for potatoes.

TABLE 4.—*Potatoes: Estimated net cost of the price-support program, by disposal outlet, crop year 1949*

Disposal outlet	Quantity purchased	Commodity cost	Transportation cost	Gross cost	Recovery	Net cost
Direct distribution under:						
Section 32-----	1,977	3,750	1,800	5,550	0	5,550
Section 416-----	578	1,330	0	1,330	0	1,330
Public Law 471-----	619	1,341	558	1,899	0	1,899
Livestock feed-----	25,497	44,897	4,200	49,097	3,750	45,347
Penal institutions-----	125	261	0	261	1	260
Demonstration-----	436	724	196	920	0	920
Starch-----	6,785	10,400	30	10,430	1,050	9,380
Flour-----	688	1,309	256	1,565	172	1,393
Glucose-----	110	251	30	281	11	270
Dehydration-----	54	119	41	160	43	117
Export-----	4,437	9,702	0	9,702	44	9,658
Alcohol-----	458	917	92	1,009	96	913
Dumped-----	4,630	6,807	0	6,807	46	6,761
Total-----	46,394	81,808	7,203	89,011	5,213	83,798

Disposition operations for potatoes were significantly changed from those in effect for the 1948 crop. More than half of the 1948 crop surplus was processed into flour and alcohol, but of the 1949 crop, more than half was used for livestock feed. About 54 percent of total purchases were utilized for stock feed, 14 percent for starch, 10 percent for export, 7 percent for donation to school lunch and other eligible outlets, 10 percent dumped, and 5 percent for miscellaneous outlets, including flour, alcohol, dehydration, and glucose.

Disposition of surplus potatoes was altered materially by the Agricultural Act of 1949. Under section 416 of that act, potatoes could be donated only f. o. b. shipping point. Furthermore, since section 411 of the act requires that section 32 funds be devoted principally to perishable nonbasic, nondesignated commodities, the use of these funds to pay the cost of freight on potatoes was not continued. While the act permits distribution for livestock feed and other non-food uses of commodities threatened with loss through spoilage, without restriction on payment of transportation cost, it was not deemed advisable to continue payment of freight to nonfood outlets when food users were required to pay such charges.

There also was the question of minimizing the cost of the program by avoiding freight charges in excess of the recovery from sale of the potatoes. Consequently, State PMA committees were instructed in February 1950 to limit distribution of potatoes purchased under price support to outlets which would involve no cost to the Government other than the cost of the commodity itself. Since this limited useful disposition largely to outlets located in potato-producing areas, there was fear of extensive dumping of potatoes. However, the amount of dumping, or waste on the farm, did not reach major proportions, it aggregated only 7,400,000 bushels or 10 percent of total 1949 crop purchases.

Under Public Law No. 471, Eighty-first Congress, effective April 14, 1950, payment of transportation and handling costs on potatoes acquired under the 1949 price-support program was permitted on donations to the school lunch program, the Bureau of Indian Affairs, Federal, State, or local public welfare organizations, private or international nonprofit welfare organizations, penal institutions, and nonprofit hospitals. Consequently, shipments to such outlets during the balance of the 1949 season were made on a freight-paid basis. A total of 5,300,000 bushels of 1949-crop potatoes were donated under this program during the fiscal year.

In January 1950, fresh Irish potatoes were made available for export at a price of 1 cent per 100 pounds, f. o. b. cars at shipping point. A total of 7,200,000 bushels moved under this program, principally to Germany, Israel, Spain, and Portugal.

Irish potatoes, 1950 crop

Support prices for 1950-crop potatoes were based on 70 percent of the parity price as of January 1, 1950. A slightly lower index of prices paid and the application of transitional parity resulted in a firm support price for the 1950 crop of \$1.00 per bushel, which averaged about 9 cents per bushel less than for the 1949 crop.

A program policy was adopted for the 1950 purchase program, under which allowances for grading, sacking, and loading were ab-

sorbed by CCC only on donations for domestic and foreign relief. Livestock feed and other nonfood and processing buyers were required to pay a price for potatoes sufficient to reimburse CCC fully for any marketing services they desired to have performed. In past years, payment was made for marketing services required to be performed.

Price-support purchases from the 1950 crop began on January 18, 1950, a record early date. However, up to June 15, 1950, purchases were very light and amounted to only 35 percent of purchases from the 1949 crop through the same date. As of June 30, 1950, PMA had acquired 2,192,000 hundredweight of 1950-crop potatoes at a commodity cost of \$2,362,000.

Sweetpotatoes

Price support for 1949-crop sweetpotatoes was mandatory through December 31, 1949. Prices were supported at 80 percent of July 1, 1949, parity price during the period September 1, 1949, through April 30, 1950. Purchases were made with CCC funds and sweetpotatoes acquired were distributed to section 32 outlets, CCC being reimbursed from section 32 funds.

Price-support purchases during the fiscal year totaled 40,272 bushels at a commodity cost of \$118,779. Under existing legislation, price support is not mandatory for the 1950 crop and prices of 1950-crop sweetpotatoes will not be supported.

Honey

Under the provisions of the Agricultural Act of 1949, price support for honey is mandatory at levels ranging from 60 to 90 percent of parity. A program for the 1950-51 marketing season, providing price support to producers at 9 cents per pound, or 80 percent of April 1, 1950, parity, was announced on June 30, 1950. Prior to this announcement, a diversion program providing for payments of 1.75 cents a pound on honey of U. S. Grade B or better was announced. Up to June 30, 1950, no diversion applications had been approved. A total of 3,663,920 pounds of honey had been approved through June 30, 1950, for export under the section 32 program to encourage exports through making payments on such sales.

Other stabilization activities

Section 32 programs, providing for purchases of surpluses, export payments, and diversion programs for fresh fruits and vegetables, honey, dried fruits, canned citrus juices, and tree nuts were in effect during the year. In addition, purchases of canned vegetables, fruits, and juices were made with school lunch program funds under section 6 of the National School Lunch Act. Table 3 summarizes these operations.

Standardization

Fresh products

United States standards for grapefruit and oranges were revised in time for use on the 1949 crop. Principal effect of the revisions was to make the standards better adapted for use in grading and packing small packages of the products and thus to encourage a continued increase in the per capita consumption of fresh fruits and vegetables.

TABLE 5.—*Estimated cost of purchases, diversion, and export payments for fruits and vegetables (other than Irish potatoes), tree nuts, and honey, by type of program and commodity, fiscal year, 1950*

Type of program and commodity	Unit	Quantity	Estimated total cost
Section 32 purchases:			
Fresh apples	Bushel	3,242,579	8,378,000
Fresh pears	Box	832,188	2,690,000
Fresh plums	½ bushel	65,092	115,000
Fresh vegetables			223,890
Sweetpotatoes	Bushel	62,272	147,655
Honey ¹			260,000
Dried prunes	Packed ton	390.0	100,000
Raisins	do	1,612.5	303,000
Total purchases			12,217,545
Section 32 export:			
Fresh apples	Bushel	2,151,469	2,525,635
Fresh pears	Box	132,886	166,102
Fresh oranges	do	1,258,167	2,075,213
Concentrated orange juice	Gallon	48,692	72,342
Canned orange juice	Case	72,033	73,590
Honey	Pound	2,382,920	107,231
Dried prunes	Packed ton	42,290.9	3,825,000
Raisins	do	68,445.2	5,925,000
Total exports			14,770,113
Section 32 diversion:			
Dried figs	Packed ton	192.2	12,000
Dried prunes	do	33,257.4	2,200,000
Raisins	do	18,152.4	1,600,000
Almonds	Shelled pound	2,389,867	727,351
Filberts	Unshelled pound	4,216,018	264,453
Walnuts	Shelled pound	8,497,754	2,949,102
Total diversion			7,752,906
Total section 32			34,740,564
Section 6 (of the Natl. School Lunch Act) purchases:			
Canned tomatoes	Case	639,250	2,178,295
Canned tomato paste	do	133,900	732,229
Concentrated orange juice	Gallon	153,900	649,000
Canned sweet corn	Case	452,750	867,355
Canned snap beans	do	123,307	330,876
Canned peaches	do	1,263,700	5,211,963
Canned apricots	do	45,300	230,242
Canned plums	do	72,842	237,531
Total section 6			10,437,491
Grand total			45,178,055

¹ Amount authorized to pay transportation on 1949 fiscal year purchases.

United States standards for fresh tomatoes were revised to provide diameter size ranges to correspond with the various size arrangements packed in lugs.

Revised United States standards for cantaloups, including a number of refinements and improvements, were issued.

Investigations were completed for the revision of United States standards for green corn. These standards will become official shortly.

Studies were made of the proposed revision of standards for bunched beets and for pecans.

In the field of development of new standards, United States standards for green tomatoes for processing were issued in the spring of 1950 at the request of industry representatives who intend to use them as the basis for grower contracts. Research looking to the development of United States standards for blueberries and broccoli for processing was completed and standards for both products will become effective for use in the fall of 1950. Field investigation work was continued on the development of standards for oranges for processing. At the request of the industry research was begun on standards for almonds.

Continued assistance was provided Federal, State, and local government agencies in the formulation of specifications for the purchase of fresh fruits and vegetables. New Federal specifications for Persian limes were developed, and revised specifications for fresh oranges and grapefruit (other than California and Arizona), tangerines, cabbage, and cauliflower were submitted for approval and publication.

The following work was carried on under the Research and Marketing Act:

United States consumer standards for fresh carrots and husked corn were developed and issued. Investigations looking to the development of United States consumer standards for apples, kale, Italian sprouting broccoli, brussels sprouts, cauliflower, and collards were conducted during the year. Standards for kale and brussels sprouts have been published in the Federal Register. In addition to the consumer standards developed, industry representatives have requested standards for mustard greens and snap beans.

Tests, continued from the previous year to determine moisture content of shelled peanuts with three types of electric moisture meters, showed that results obtained with 75-gram samples are nearly as consistent as those obtained with 100-gram samples. Calibration tables are being drawn up for use on the smaller samples. Use of the smaller samples will result in tremendous savings of labor and time in inspecting farmers' stock peanuts. A study of the accuracy of present methods of determining the percentage of foreign material in farmers' stock peanuts, made at a peanut shelling plant in Florida, indicated that present inspection procedure comes close to determining the true percentage of foreign material on the average.

Cooperative research with the Maryland Agricultural Experiment Station was continued in the development of objective tests of quality for asparagus, peas, sweet corn, tomatoes, and snap beans. Existing and newly developed mechanical devices were used on these products and comparisons made between the results obtained with different devices and with grade ratings based on United States standards for

the products. Tests were made of a fiber-pressure tester for asparagus under commercial conditions and a new power-driven instrument for determining maturity of peas was constructed by the University of Maryland.

Processed products

During the year, grades for canned apple juice, canned carrots, canned pineapple, canned pineapple juice, canned spinach, and frozen broccoli were revised and published. New standards for grades of canned white potatoes, canned blackeyed peas and other field peas, and frozen okra and corn-on-the-cob also were developed and issued. Data were developed and preliminary steps were taken in the promulgation of new grades for canned grapefruit and orange for salad, frozen concentrated grapefruit juice, and frozen concentrated blended orange and grapefruit juice. Studies were made of revision of standards for grades of canned applesauce, canned blueberries, honey, frozen brussels sprouts, frozen blueberries, and frozen concentrated orange juice, and preliminary steps have been taken to review these grades.

In cooperation with other Government agencies, work was continued on the development of Federal specifications. During the year, most of the specifications developed were revisions of those existing, with the exception of specifications for canned pineapple juice.

Inspection

Fresh products

A total of 1,253,658 carlots of fresh fruits and vegetables, including farmers' stock peanuts, was inspected during the year as follows: At shipping point, 781,949 carlots; at receiving markets, 47,368; for public and private agencies, 29,341; raw products for processing plants, 319,728; farmers' stock peanuts, 74,995; and continuous inspection under consumer grades, 277. The shipping point inspection is carried on under cooperative agreements with each of the 48 States and the Territory of Hawaii.

All of these agreements were amended during the year to meet special needs. Requests for the sampling of lupine seed and tung-oil nuts were examples of unusual work during the year. The presence of the agreements provided the necessary machinery for inspection of farmers' stock peanuts under the 1949 peanut-support program. This involved the inspection of 899,940 tons of peanuts and required the training and employment of a force of 2,000 inspectors, samplers, and helpers in 10 States. Contributing to the increase in inspections were activities under the price-support program for potatoes; surplus-removal programs for apples, pears, fresh prunes, snap beans, spinach, cabbage, and sweetpotatoes; diversion programs for almonds, walnuts, and filberts; export payment programs for apples, pears, and citrus fruits; and the material increase of inspection under marketing agreements.

Processed products

The following processed products were inspected during the year: Canned fruits and vegetables, 104,647,090 cases; canned marine

products, 135,660 cases; frozen products, 686,033,107 pounds; dried products, 483,963,782 pounds; dehydrated products, 4,409,660 pounds; and other processed products, 41,131,522 pounds. Compared with the previous fiscal year, these inspections represented a sharp increase with respect to frozen products.

The number of plants approved to pack under continuous inspection as of June 30, 1950, was 127, as compared with 111 plants in 1949. Whereas there was a slight decrease in canned fruits and vegetables packed under continuous inspection, there was a very large increase in frozen fruits and vegetables. This was largely attributable to the decrease in canning of citrus juices and the large increase in production of frozen citrus concentrates in Florida.

As of June 30, 1949, field offices handling inspection of processed fruits and vegetables were being operated at Atlanta, Baltimore, Boston, Easton (Md.), New York, Philadelphia, Portland (Maine), Richmond, Rochester, Washington, Winter Haven (Fla.), San Juan (Puerto Rico), Cedar Rapids, Chicago, Columbus, Detroit, Fayetteville (Ark.), Hammond (La.), Knoxville, Ripon (Wis.), Weslaco (Tex.), Denver, Fresno, Los Angeles, Portland (Oreg.), Salem (Oreg.), Salt Lake City, San Francisco, Seattle, Stockton, San Jose, and Yakima.

Cooperative trust fund agreements, established with State departments of agriculture, extension services, Territorial governments, and associations of processors or trade associations, totaled 36 as of June 30, 1950.

Marketing Research Under the Research and Marketing Act

Free classes in improved merchandising methods for retailers of fresh fruits and vegetables were continued by the United Fresh Fruit and Vegetable Association under a contract with the Department. During the year, 6,124 individuals were given training in improved retailing practices. Since the program began in November 1947, 17,670 retailers and their employees have received training.

Under a contract between the Department and the Industrial Surveys Co., Inc., information is being compiled periodically with respect to the availability of certain fresh, canned, and dried fruits in retail stores throughout the country. Data also are furnished on inventories of selected dried fruits held in retail stores, consumer purchases of selected fresh fruits, canned and frozen juices, and dried fruits, and reports have been prepared on consumer buying practices for these products.

Improvement of the marketing of spinach, collards, and kale grown in the Norfolk, Va., area was studied and reported upon during the year, and preliminary work is under way on a study of marketing sweetpotatoes grown in Maryland and Virginia. Production of better quality packs of processed fruits and vegetables is being encouraged in Louisiana, Texas, Mississippi, Alabama, and Georgia. As a result, sweetpotato canners in Texas, Louisiana, and Mississippi have reported the establishment of a market for high-quality canned southern yams. Work of a similar nature is under way on canned blackeyed peas, and not so far advanced are the same kinds of projects for canned okra, frozen strawberries, broccoli, cauliflower, and greens.

Work also is being undertaken to determine the grade and quality of finished products which may be processed from a given quality and grade of raw vegetables.

Substantial progress was made during the year on a project of collecting data on where and by whom fruits and vegetables are being prepacked and of data on manufacturers of packaging materials, machinery, and equipment, and converters (film-bag manufacturers) of packages. This survey of so-called consumer packages is to be continued.

Improvement in film-bag packaging material has led to considerable experimental use of such containers for heavier products, such as citrus, apples, onions, and potatoes. In addition, data on shipping containers currently in use was published during the year in Farmers' Bulletin 2013, *Containers in Common Use for Fresh Fruits and Vegetables*.

The development of a practical means of reporting truck shipments of fresh fruits and vegetables on a current basis has been undertaken in another project. But the work will be limited to a very few areas where existing State or other agencies are set up to conduct a major part of it.

Under another project, an experimental market news office has been set up at Martinsburg, W. Va., to develop and test improved methods of collecting and disseminating more complete information on the prices and movement of carlot and truck shipments of apples grown in the Shenandoah-Cumberland-Potomac area of Virginia, West Virginia, Maryland, and Pennsylvania.

GRAIN, FLAXSEED, SOYBEANS, BEANS AND PEAS, AND SEEDS

Production of corn, wheat, and oats in 1949, although not so large as in 1948, was substantially larger than the 1938-47 average. Production of rice and dry edible beans set a new high record, the output of sorghum grain was the second largest of record, and the flaxseed crop was the third largest. Heavy supplies of these and other grains and pulses made necessary active price-support operations and had a direct bearing on other types of programs administered by PMA, such as adjustment and grading.

Price Support

Price-support programs were formulated and administered for 1949-crop corn, wheat, oats, barley, rye, grain sorghums, rice, dry edible beans and peas, flaxseed, soybeans, and a large number of winter cover-crop seeds, and hay, pasture, and range grass seeds. High lights of support operations for individual 1949 crops are as follows:

CORN.—National average support price, through loans and purchase agreements, \$1.40 per bushel. Support price based on 90 percent of the October 1, 1949, parity price. Support extended: 385,300,000 bushels, having a value of \$519,500,000.

WHEAT.—National average support price, through loans and purchase agreements, \$1.95 per bushel. Support price based on 90 percent of the July 1, 1949, parity price. Support extended: 382,800,000 bushels, having a value of \$763,100,000.

OATS.—Support price, through loans and purchase agreements, 69 cents per bushel, based on 70 percent of the parity price as of April 15, 1949. Support extended: 41,700,000 bushels, having a value of \$27,900,000.

BARLEY.—Support price, through loans and purchase agreements, \$1.09 per bushel, based on 72 percent of the parity price as of April 15, 1949. Support extended: 33,200,000 bushels, having a value of \$36,400,000.

RYE.—Support price, through loans and purchase agreements, \$1.27 per bushel, based on 72 percent of the parity price as of April 15, 1949. Support extended: 1,230,000 bushels, having a value of \$1,483,000.

GRAIN SORGHUMS.—Support price, through loans and purchase agreements, \$2.09 per 100 pounds, based on 70 percent of the parity price as of April 15, 1949. Support extended: 47,400,000 hundredweight, having a value of \$108,100,000.

RICE.—Support price, through loans and purchase agreements, \$3.96 per hundredweight or \$1.78 per bushel. Support price based on 90 percent of the August 1, 1949, parity price. Support extended: 8,200,000 hundredweight, having a value of \$34,900,000.

DRY EDIBLE BEANS.—Support price, through loans and purchase agreements, an average of about \$6.55 per hundred pounds, based on 80 percent of the parity price as of September 1, 1949. Support extended: 9,000,000 hundredweight, having a value of \$63,000,000.

DRY EDIBLE PEAS.—Support prices, through loans and purchase agreements, an average of \$3.12 per hundred pounds for specified varieties and \$2.87 per 100 pounds for Colorado White peas. Support prices based on 90 percent of the parity price as of July 1, 1949. Support extended: 1,058,000 hundredweight, having a value of \$3,256,000.

FLAXSEED.—Support price, through loans, purchase agreements, and purchases only from producers in 32 Texas counties, \$3.99 per bushel. Support price based on 90 percent of the parity price as of April 1, 1949. Support extended: 12,000,000 bushels, having a value of \$44,900,000.

SOYBEANS.—Support prices, through loans and purchase agreements, \$2.11 per bushel for green and yellow soybeans grading U. S. No. 2 or better and \$1.91 per bushel for brown, black, and mixed soybeans, based on 90 percent of the comparable price as of September 1, 1949. Support extended: 16,000,000 bushels, having a value of \$34,600,000.

HAY AND PASTURE GRASS SEEDS.—Support prices, through purchase agreements (in the case of lespedeza, through purchase agreements and loans):

Lespedeza: Kobe, 12 cents per pound; common or Tennessee 76, 16 cents; and Sericea, 15 cents.

Clovers: Alsike, 25 cents per pound; ladino (certified seed only), \$1.25; red, 35 cents; Hubam sweet, 8 cents; and white (Southern States), 45 cents.

Grasses (rates on basis of certified seed only except in case of wheat grasses): Tall meadow fescue, 35 cents per pound; smooth brome, 16 cents; orchard, 15 cents; timothy, 6 cents; Sudan, 5 cents; and wheat grasses, 10 cents.

Range grasses: Blue grama, 15 cents per pound; big bluestem, little bluestem, side oats grama, and switch grass, 20 cents; sand bluestem and yellow Indiangrass, 25 cents; buffalo grass, 35 cents; weeping lovegrass and sand lovegrass, 50 cents per pound. Above prices were established at rates not exceeding 90 percent of the parity price as of July 1, 1949.

WINTER COVER CROP SEED.—Basic support prices, through purchase agreements: 90 percent of the parity or comparable price as of July 1, 1949, or the following prices, whichever were lower: Hairy vetch, 14 cents per pound; common vetch, 6½ cents; willamette vetch, 6½ cents; crimson clover, 14 cents; blue lupine, 4½ cents; common ryegrass, 6 cents; Austrian winter peas, 4½ cents; and rough peas, 5½ cents.

ALFALFA SEED.—Support prices, through purchase agreements: Northern, 32 cents per pound; central, 25 cents; and southern, 18 cents.

Inventories

Price-support inventories of Government-owned grain, flaxseed, soybeans, beans, and peas, and seeds on June 30, 1950, were as follows:

Barley	bushels	31,497,215
Dry edible beans	hundredweight	9,687,102
Corn	bushels	332,459,548
Flaxseed	do	13,373,583
Grain sorghums	hundredweight	41,274,224
Oats	bushels	12,108,620
Dry edible peas	hundredweight	912,259
Rough rice	do	689,962
Hay and pasture seeds	pounds	5,760,500
Winter cover crop seeds	do	7,364,572
Soybeans	bushels	53,017
Wheat	do	327,654,159

Exports

Total exports from the United States of grain and products in terms of grain equivalent during the period July 1949–June 1950 were approximately 12,320,000 long tons, equivalent to 481,211,000 bushels of grain, as compared with 17,762,000 long tons, or 689,231,000 bushels of grain equivalent in the same period of 1948–49. Of the 1949–50 total, wheat and wheat products accounted for an equivalent of 298,783,000 bushels, and other grain and products—corn, oats, barley, grain sorghums, and rye—accounted for 182,428,000 bushels. The Commodity Credit Corporation handled about 60 percent of the export total.

Production Adjustment

Above-average 1949 crops of wheat, corn, rice, and dry edible beans and substantial old-crop stocks provided unusually large total supplies of each of these commodities at a time export requirements were diminishing. As a result, it was necessary during the year to establish acreage allotments for 1950 crops of wheat, corn, rice, and dry edible beans as the first step toward bringing supplies more nearly into line with effective market demand.

The national acreage allotments totaled, for wheat, 72,719,069 acres; corn, 46,246,973 acres; rice, 1,593,112 acres; and dry edible beans, 1,419,644 acres. The national acreage allotments, in turn, were apportioned among States, counties, and individual farms as follows: Wheat, 2 million allotments in 2,574 counties in 42 States; corn, 1.9 million allotments in 837 counties in 22 States; rice, 19,971 allotments in 109 counties in 8 States; and dry edible beans, 84,420 allotments in 295 counties in 23 States. These data indicate better than anything else the magnitude of the statistical task involved in the apportionment of the various allotments.

Market News

The Federal market news program for grain was conducted through six field offices: Minneapolis, Chicago, Kansas City, Portland (Oreg.), San Francisco, and Los Angeles. The California offices participated in a comprehensive Federal-State market news service. Federal-State market news services were also carried on in Maryland, Virginia, North Carolina, Kentucky, Tennessee, Alabama, Arkansas, Louisiana, Wisconsin, Utah, and Oregon. A total of 1.4 million reports were sent out through the service direct to agricultural users and disseminating agencies. More than 600 radio stations and many newspapers and farm journals used the reports in whole or in part.

A Federal-State market news service on rice was organized in Arkansas, furnishing growers daily prices on rough rice at all the important milling centers during the principal marketing period. A start was made on a similar service in Louisiana in cooperation with State marketing officials. Three new reports on grain were inaugurated during the year: A daily grain price list was issued from three offices; a monthly report of inspected grain receipts and shipments from one office; and a quarterly wheat market summary from five of the six field offices. Some progress was made in reporting market conditions and prices of commercial mixed feeds, but this feature of the service requires further trial and study.

Regulation

Grain Standards Act

Official grain standards were in force for wheat, corn, barley, oats, feed oats, mixed feed oats, rye, flaxseed, grain sorghums, soybeans, and mixed grain. Standards for soybeans were revised, principally to eliminate the dockage provision. Standards for barley were amended to provide special grades for Choice Malting Two-rowed Western Barley and Malting Two-rowed Western Barley.

Total inspections of all grains by licensed inspectors numbered 2,120,050—almost 10 percent fewer than in the fiscal year 1949 but about the same as in 1948 and 1947. Appeals numbered 74,049, representing about the same proportion of total inspections as in 1949 but larger than in any of the years from 1943 to 1948, inclusive. Abnormal insect infestation of grain in storage, damage from other causes, and lack of uniformity of the quality of grain as loaded in railroad cars contributed to the increased rate of appeals.

On June 30, 1950, 485 inspectors were licensed under the United States Grain Standards Act and inspection was available at 146 established points and at 93 designated points. On the same date a year earlier, comparable figures were 469, 140, and 84, respectively.

All equipment used for the sampling, grading, and inspection of grain and related commodities deteriorates and must be regularly inspected to permit proper adjustment or replacement. Most of this equipment was tested during the year to insure accuracy of grading.

Market inspection

Bean inspections totaled 18,976, as compared with 15,893 the previous year. Inspections of peas numbered 6,916.

Approximately 55,000 tons of hay and straw were inspected, as compared with 85,000 tons a year earlier. It is believed that an increase in freight rates contributed to the reduced volume of inspections by causing buyers in the South to look for hay supplies in nearby States rather than from States in the North.

Inspection of hops for content of seeds and of leaves and stems was continued in California, Oregon, and Washington, and was, for the first time, extended to Idaho. A total of 1,961 inspections, covering 231,000 bales, was made. There were only 13 appeals.

Lot inspection certificates issued on rice totaled 20,309, while sample inspection certificates totaled 7,803. These inspections covered 17,804,000 bags of rice.

The quantity of alfalfa seed verified as to origin—62,338,000 pounds—was the largest of record. Verification of clover totaled 456,000 pounds.

The seed dockage inspection service continued at a low volume of inspections—107.

The 12,715 inspections of flour, soybean products, vegetable oils, and other miscellaneous commodities, as compared with 33,142 for the previous year, reflect a reduced volume of purchases by the Government. PMA continued to inspect miscellaneous commodities procured by the Quartermaster Corps for the Army, Navy, and Marine Corps.

Federal Seed Act

The Federal Seed Act requires the testing of all agricultural and vegetable seeds offered for importation to determine whether they meet the standards of quality required by law for admission into the United States; it also requires truthful labeling of agricultural and vegetable seeds moving in interstate commerce.

A total of 102,225,000 pounds of agricultural and vegetable seeds was offered for importation under the Federal Seed Act during the fiscal year 1950. Of this total, 100,895,000 pounds were released into the commerce of the United States, while 1,330,000 pounds were rejected.

Investigations completed under the interstate provisions of the Federal Seed Act totaled 693. In 174 cases, no action was warranted; warnings were issued in 475 cases; 46 cases were cited for hearings; seizures were recommended in 12 cases; criminal actions were recommended in 42 cases (these resulting in 18 court actions); and of the 13

criminal actions terminated during the year, 8 were successfully prosecuted.

A total of 1,534 samples of seed was planted to determine the variety, as compared with 2,200 the previous year. Of these, 1,111 samples were subject to the Federal Seed Act.

Tests performed for other Government agencies carrying on seed programs and for seed dealers who sold seed to the Government on the basis of Government inspection and testing totaled 3,366.

Prevention of adulteration of grain

In cooperation with the Food and Drug Administration, to prevent the adulteration of high-quality bread grain by the admixture of low-quality and out-of-condition grain, PMA examined 2,543 lots of low-quality grain. A total of 2,338 lots was found unfit for mixing.

Activities Under the Research and Marketing Act

A study made under contract with five State agricultural experiment stations revealed that price risks incurred by feed manufacturers were seasonally large in the aggregate, even though most manufacturers limited their inventories of most ingredients in order to hold down their price risks. Accumulations of grain were comparatively small; at times of maximum inventories the tonnage of nongrains was nearly twice that of grain. It appears that development of broad, well-conducted futures markets in certain nongrain ingredients would contribute to stability in the mixed-feed industry.

A survey conducted in 30 cities, under informal cooperation with industry groups, showed that sales of beans, peas, and rice in packages are much greater than bulk sales and that there is a trend toward transparent film packages. Cooperative work with manufacturers to develop better and more economical packages for beans, peas, and rice is expected to enhance consumer acceptance of the products and reduce waste in handling, shipping, and storage.

Research showed that, within a temperature range of 75° to 85° F., bread stored at low temperatures stale more rapidly than bread stored at higher temperatures. But storage of bread at freezing temperatures preserves fresh characteristics of bread for prolonged periods, the state of freshness being somewhat dependent upon the rate of freezing. The study also indicated the desirability of maintaining relatively high temperatures in bread during the initial period of storage.

Statistical analyses indicate that the sedimentation test devised by PMA's Grain Branch is fully as reliable an index of the potential bread-baking quality of wheat as the protein test. An additional advantage of the sedimentation test is that it reflects the inferior bread-baking quality of certain varieties of wheat much better than the protein test or other tests ordinarily used.

A simple, relatively inexpensive, hand iodine-number refractometer, designed to measure directly the iodine numbers of freshly pressed flaxseed and soybean oils, was developed collaboratively with an optical company. The refractometer was tested and found to be very satisfactory for the purpose for which it was designed, and to give

results comparable to those obtained with an expensive, precision refractometer and its accessories.

The Carter dockage tester was adapted to removal of weed seeds and other foreign material from rough rice, and performed very satisfactorily. A machine for use in completing the milling of rice was built, and works well, although further research is required to determine how well the percentages of whole and broken kernels obtained compare with average commercial milling practices.

Feeding tests were conducted with lespedeza hay grading U. S. No. 3 Leafy Green Lespedeza Hay, with 53 percent of leaves and 18 percent of foreign material, and U. S. Sample Grade Green Extra Leafy Lespedeza Hay, with 57 percent of leaves and 30 percent of foreign material. Cows consumed about the same quantity of hay of both kinds, but the "weigh back," or part refused by the animals, amounted to 19 percent for the No. 3 and 31 percent for the Sample grade—almost the same as the percentage of foreign material.

Under a project for standardization and coordination of methods of sampling and testing seeds, carried on cooperatively with Iowa State College, the following conclusions were drawn from field and laboratory studies: (1) In general, seed inspectors carried out their duties conscientiously and attempted to obtain representative samples; (2) inspectors were familiar with the rules governing the sampling of seeds but in many instances did not adhere to those rules; (3) analysis of individual-bag samples revealed that only 20 percent of the seed lots tested were uniform for pure seed; (4) results of the study suggest that many so-called seed lots cannot be expected to be uniform and laboratory tests on such samples cannot be expected to be in agreement.

Extensive research was carried out at Iowa State College to determine whether the so-called staining of seeds with tetrazolium dye has any practical use in evaluating the germination of seeds and to study the fundamental nature of action of this dye in living plant cells. This research has not confirmed claims of European investigators that the method can be substituted for germination testing. The test, however, has value under certain special conditions.

Work was being continued at the end of the year on development of a rapid, simple, and practical test for determining fat acidity in grain. Fat acidity has been shown to be a useful index of soundness in grain, but available methods of determining fat acidity are not practical for routine use.

Distinct progress is being made in the development of a grain trier constructed from special rolled and tempered aluminum. At the end of the year, a study was in progress of the height of grain in boxcars offered for inspection in several widely separated markets that handle different kinds of grain.

A project was being carried on at the end of the year to determine which factors of hop quality can be measured accurately, and which factors can be determined quickly enough to be feasible from an inspection standpoint.

Other Research

Evaluation of a dry process for the milling of sorghum grains and products was the objective of research carried on cooperatively by the

Kansas Agricultural Experiment Station and PMA. Research results indicate that sorghum grits and flour appear to be satisfactory for production of dog food, paper, wallboard, commercial alcohol, and brick. The flour apparently can be blended successfully with wheat flour up to about 6 percent and as much as 40 percent of sorghum flour can be used in making cookies.

Special emphasis was given to problems relating to the storage and conditioning of rice in Louisiana; grain sorghums and flax in Texas; corn, blue lupine, and other seeds in Georgia; corn, seeds, and small grain in North Carolina, Virginia, Tennessee, and Maryland. In Louisiana and Tennessee tests were under way at the end of the year to determine the efficiency of hermetically-sealed glass-lined storage bins. In Louisiana and Texas, batch driers were in operation and one was being built in North Carolina. A counter-flow continuous farm-type drier was being tested in Indiana. To overcome problems of drying dry edible beans, a recirculating drier was under construction at the end of the year for use in Michigan. An experimental jet-type ventilator, constructed and tested in Maryland, appears to have excellent possibilities for controlling ventilation in stored grain.

Revised standards for hay and straw became effective July 1, 1949, and for soybeans September 1, 1949. Standards for barley to provide for malting barley grades for Western barley of the Hannchen and Hanna varietal types were promulgated effective July 1, 1950. Revised standards for beans became effective May 1, 1950. A preliminary proposal was made for a complete revision of standards for milled rice, but a final decision had not been made at the end of the year. Investigations were started to determine the advisability of establishing standards for safflower seed.

Research started in 1947 on the quality and feeding value of forage cured or preserved by various methods, was continued. This is a cooperative project among the Bureau of Dairy Industry; the Bureau of Plant Industry, Soils, and Agricultural Engineering; and PMA. A field crusher was used to crush some of the lots of hay at time of harvest. From a half- to a full-day's less time was required to cure the crushed hay, and it had more green color, considerably higher carotene content, and slightly more protein than hay that was not crushed. It was found, in another series of tests, that sulfur dioxide would inhibit the development of mold but would not prevent mold developing after a period of about 2 weeks if the hay was not cured by that time.

LIVESTOCK, MEATS, AND WOOL

Cattle numbers are in the initial phases of an upward swing in the long-time production cycle. The increase did not result in an appreciable gain in beef supplies during the fiscal year, because some numbers of cattle were held back to augment breeding herds. As the cyclical increase progresses and producers market the equivalent of their annual production, slaughter supplies will become larger. Pork supplies during the year did not increase proportionately with the increase in hog numbers because of marketings at lighter weights, more in line with consumer preference. Continued large corn crops

have encouraged further increases in hog numbers, however, and there was a 10-percent increase in the 1949 pig crop, and a 3-percent increase in the 1950 spring pig crop. Sheep numbers continued the downward trend of the last 8 years. However, a gradual increase in sheep numbers and wool production is now expected.

Price Support

Wool and mohair

Although the price of wool was supported throughout the fiscal year, the Commodity Credit Corporation purchased only 65 million pounds of lower-grade wool, about half as much as was purchased in the preceding fiscal year. CCC sales from stocks acquired in the fiscal year 1950 and in previous fiscal years, totaled 123 million pounds, which reduced total holdings from about 90 million pounds at the beginning of the year to about 313 thousand pounds as of June 30, 1950.

Since April 1, 1950, when it was announced that wool would be supported at a national average price of 45.2 cents per pound, grease basis, none has been offered for sale to the CCC. On June 30, 1950, schedules of selling prices under the 1950 price-support program were suspended indefinitely, inasmuch as open market prices for wool were far above the schedules. Because no wool had been purchased under the 1950 program through June 30, and because no purchases were expected during the remainder of the current marketing period, the Department said it had no plans for announcing revised selling prices.

Although domestic mills and dealers purchased by far the greatest part of the wool sold from CCC stocks during the year, the Economic Cooperation Administration furnished an outlet for 8,500,000 pounds, having a value of more than \$5,125,000, for shipment to Germany and Austria.

Under the Agricultural Act of 1949, price support of mohair was made mandatory along with wool. The support program for mohair is expected to be announced shortly after July 1.

Hogs

Although a price-support program for hogs was announced, and was in "standby condition" through March 31, 1950, it was not found necessary to conduct operations under it.

Price support at 90 percent of parity was mandatory through December 31, 1949, under the Agricultural Act of 1948, and this support level was extended until March 31, 1950. Under the Agricultural Act of 1949, effective January 1, 1950, hog prices may be supported at any level between 0 and 90 percent of the parity price. Prices of hogs were higher than the 90-percent-of-parity level during April, May, and June, 1950, however, and no support program was announced by the Department.

Procurement

Purchases of canned and frozen meat from Mexico and of lard from domestic producers were made during the fiscal year.

Under the program to purchase canned meat from Mexico, continued as a phase of the campaign to eradicate foot-and-mouth disease

from that country, 39,800,000 pounds were contracted for, including 6,300,000 pounds of meat and gravy produced but not delivered under 1949 fiscal year contracts. All purchases were made at 18 cents per pound, f. o. b. plant, and it is estimated that the program removed 132,164 cattle from the purchase area. Sales from CCC stocks, restricted to export, totaled 8,800,000 pounds at \$800,000 during the year. Despite two reductions in sales price, it became increasingly difficult to dispose of the stocks acquired under this program. The CCC's inventory on June 30, 1950, totaled 68,891,000 pounds.

In February 1950, what is expected to be a continuing program, was initiated for the purchase of frozen-carcass meat from northern Mexico to supply requirements of foreign governments through the Economic Cooperation Administration. Contracts covering 12,500,000 pounds, having a value of approximately \$2,200,000, were entered into up to June 30, 1950.

A total of 142,300,000 pounds of lard, valued at \$17,600,000, was purchased for the Economic Cooperation Administration. Also lard purchases totaling 8,400,000 pounds, valued at \$1,100,000, were made for the Army for shipment to the Far East.

Regulation

Packers and Stockyards Act

Major activities under the Packers and Stockyards Act during the last year included an investigation of weighing at the Kansas City Stockyards, an investigation of speculation in consignors' livestock by commission firm personnel and collusive arrangements between salesmen and speculators at the Fort Worth Stockyards, and an investigation of trade practices in connection with the handling of live poultry at the New York City Terminal. Based on the facts developed by the Kansas City investigation, 8 weighmasters at that market were immediately discharged for giving false weights in return for bribes from dealers, criminal actions are to be brought against five of the weighmasters, and the registrations of 19 of the dealers involved and 1 commission firm at the market were suspended by administrative action.

As a result of the Fort Worth investigation, the Department of Justice has brought action against 16 individuals to obtain injunctions and to recover the penalties provided in the act for violations, and 16 administrative actions have been initiated against commission firms and dealers to obtain cease-and-desist and suspension orders. With the cooperation of the New York City Department of Markets, handlers of live poultry at the New York City Terminal who previously had been operating as dealers were required to change their methods of operation to a strictly commission basis.

As of June 30, 1950, 308 stockyards were posted, 4,679 livestock market agencies and dealers were registered, and 1,576 poultry sales agencies were licensed under the act. Tariff actions during the year numbered 1,378, and 370 informal complaints were investigated and disposed of by field supervisors. Supervision of the increasingly large number of auction markets (100 additional yards were posted during the year) with available personnel continues a problem.

Insecticide, Fungicide, and Rodenticide Act

A number of new chemicals developed as economic poisons were admitted to registration during the year. Extensive testing of the products before their release for general use was required in the interest of protecting the public and reducing danger of injury to persons and crops. Among the new products are aldrin for use against important cotton insects; ethyl p-nitrophenyl thionobenzene phosphonate for fruit insects; allethrin for contact sprays against flies, mosquitoes, and gnats; and warfarin, a new rat and mouse poison.

Original and supplemental registrations of economic poisons during the year totaled 7,200, bringing the number of registrations since the law became effective to 29,495. Examinations of samples of economic poisons materially increased, totaling 2,221, of which 54 percent were products not previously found in interstate commerce. Of the total, 479 were found to be so seriously misbranded, adulterated, or otherwise in violation of the law as to warrant citation or seizure. Seizure action was initiated on 67 shipments, including 60 different products, and prosecution was recommended against 12 manufacturers. Work on the development of methods of testing economic poisons was increased and a number of advances were made during the year.

Market News

The livestock market news service was expanded to provide new offices at Atlanta, Ga., Evansville, Ind., Stockton, Calif., and Tulsa, Okla., during the year. Coverage of the livestock markets in these areas was provided with the cooperation of the States in which the markets are located. The market news service now covers 34 terminal markets (all are livestock terminal markets except the New York wholesale meat market and the Boston wool market) and 2 direct market areas. Wholesale meat trade conditions and prices are reported in six areas, wool prices are reported at Boston, and direct and contract sales of lambs and cattle are reported in the Pacific and western range areas. Uniform terminology for use in the preparation of all livestock reports was adopted during the year. Pamphlets showing a schedule of categories of terms and a list of terms within each category have been distributed for use as guides to all reporting offices and to information media and others regularly disseminating market news.

Standardization

Livestock and meats

Revision of beef carcass standards, which would eliminate the grade division between the present Prime and Choice, create two grades from the present Commercial, and make certain other changes in name designations, was proposed during the year. To make the proposed revised standards more useful, certain minimum grade requirements are included. The proposed revised standards were demonstrated to an industry committee and the proposal was held open to comment from all interested groups for a 60-day period, during which time it drew a great amount of interested discussion and comment. Action on the proposal is expected in the next fiscal year.

The program for acquainting consumers with Federal grades of meat was expanded and more than 60 meetings were held in 8 of the eastern seaboard States and at Washington, D. C.

Wool and mohair

Work in the development of wool and mohair grades and standards covered the following general phases during the year:

In an effort to develop methods and techniques for rapid determination of certain physical quality factors of wool and mohair, with special reference to fiber fineness and variability, a comparator film strip has been perfected and made available for distribution.

A tentative set of market grades or classes, representing Fine, $\frac{1}{2}$ Blood, $\frac{3}{8}$ Blood, $\frac{1}{4}$ Blood, Low $\frac{1}{4}$ Blood, Common, and Braid have been developed. At present the samples covering these grades are on a visual basis only and will not be established on a quantitative basis until growers, members of the trade, and manufacturers have had a chance to study them. If the grades prove generally adaptable for use in sale and purchase, the samples will be measured and the specifications developed in terms of microns, for bulk content and distribution within each grade or class.

A tentative set of specifications for grades of grease mohair also have been developed on a visual basis. These have been discussed with producers and the trade and industry, and official notice of these grades is in process of publication.

During the year 3,257 lots, representing 51,443,746 pounds of grease shorn and pulled wool stocks of CCC, were core sampled for shrinkage determination to permit an accurate estimate of clean content of the grease wool. In addition 792,000 pounds were core tested for producers on a fee basis. Because of keen demand for wool at relatively high prices during the latter part of the year, the substantial number of requests expected from growers for shrinkage determination on a fee basis did not materialize.

Meat Grading

Continued expansion and increased demand for the meat grading service occurred during the year, and approximately 2.6 billion pounds of meat of all types, classes, and grades were officially graded and certified. This was about a 7-percent increase over the previous year. Of the total meat graded, close to 95 percent was beef, veal and calf, and lamb and mutton, with beef accounting for nearly 80 percent of the total.

The restriction of the grading service to meat produced in establishments that operate under Federal inspection and to meat produced in nonfederally inspected plants that meet the sanitary requirements required by the amended rules and regulations governing the grading of meat, instituted in 1949, was favorably received in general by the trade. State and local government institutions were the first to take advantage of the inspection regulations—several purchasing agents restricting their purchases to operators complying with this regulation.

Although no concerted effort was made to encourage the use of graded meats, advantage was taken of every opportunity to acquaint consumers and the trade with the service and its dependability.

This approach met with favorable reception throughout the industry and further efforts along this line will be stressed.

Foreign Trade

Detailed prewar and postwar estimates of livestock numbers, meat production, and trade in meats, wool, mohair, and other animal products for the United States were prepared in assisting committees engaged in developing and formulating programs carried on under ECA. Information was prepared for the delegation of the United States to the International Wool Study Group that met in London, England, during the year, and a study was made of the effect of domestic agricultural policies and programs on foreign trade in wool.

Research

Livestock

Research, under authority of the Research and Marketing Act of 1946, was conducted during the year in connection with: (1) The revision of standards for grades of beef and the preparation of color photographs showing minimum requirements for each of the principal grades; (2) the establishment of proposed standards and grades for live slaughter barrows and gilts and the preparation of photographs; and (3) completing and testing objective measures for differentiating between veal and calf carcasses. Other research studies were undertaken to determine the basic differences between the current grades of beef.

The RMA project "Improvement in the Application of Live Animal Grades," in which most livestock reporting offices cooperated, continued into its third year. Visits to all Livestock Market News offices during the year revealed that there has been an improvement in the grading of live animals and in the ability and performance of most reporters. Current weekly and monthly data on livestock slaughter and meat production were compiled and published during the year with RMA funds.

Wool

The work on wool grades and standards under the Research and Marketing Act of 1946 during the year included: (1) Use of a micronaire machine, for development of a calibrated micron scale for determining fineness of wool. Work is continuing toward the development of a micron scale for rapidly determining fineness of wool; (2) determination of quantitative relationships between grease wool matchings and resultant top for the purpose of developing quantitative micron specifications for fineness and fineness distribution in classes of grease wool matchings; (3) summarization of length results to be used to formulate length requirements within and between the various grades of wool; (4) development of standards for clean wool and accurate methods of determining clean content of lots of grease wool through sampling and sampling analyses; (5) development of improved methods of preparing, packaging, and marketing grease wool by producers, and determination of the economic feasibility of various methods of preparing and processing grease wools.

The project on "Domestic Wool Requirements and Sources of Supply" was completed during the year and a final report is being published.

Production and Marketing Analysis

Work was continued during the year in analyzing trends and problems in various segments of the livestock, meat, wool, and mohair industries, with a view toward assisting and advising in the formulation of policies and programs which would contribute to desirable levels of livestock, meat, wool, and mohair production, stable prices, and efficiency and economy in marketing. Information resulting from this work was made available, not only to all interested branches of the Department but also to other Government agencies, Members of Congress, producers, and members of the trade.

Consolidation of Field Offices

With increased emphasis during the fiscal year on management improvement, the program of consolidating all livestock-marketing activities at a market or in a city into one office operated as a single unit was continued. Such activities were consolidated at 15 points during the year.

POULTRY AND POULTRY PRODUCTS

Because production of eggs in the United States set a new all-time high record during the fiscal year 1950, price-support activities for this commodity were greatly accelerated. Egg production during the 12 months ended June 30, 1950, totaled 58,447,000,000—more than 3,000,000,000 above the old record set in the fiscal year 1949, and the equivalent of 390 eggs for each of the 150,100,000 persons drawing on civilian food supplies of the country. Turkey prices were supported during peak marketing months of the fiscal year, but no price-support operations were necessary for chickens.

Price Support

Price-support operations for eggs and turkeys were carried out under two different laws in the 1950 fiscal year. Until December 31, 1949, price support at 90 percent of parity was mandatory under the Agricultural Act of 1948. Under the Agricultural Act of 1949, price support is not mandatory for poultry, eggs, and other nondesignated nonbasic commodities but is left to the discretion of the Secretary of Agriculture. Under the 1949 act, the level at which nondesignated nonbasic commodity prices are to be supported also is discretionary, within a range of 0 to 90 percent of parity for eggs and poultry products. During the first 6 months of the calendar year 1950 the Department supported egg prices under a program, the purpose of which was to "seek to maintain the national average annual farm price at 37 cents a dozen—approximately 75 percent of the modernized parity." (Under the 1949 Agricultural Act, parity is computed under a different formula from that used in previous years.) Turkey prices were supported at a national average price of about 31 cents per pound—approximately 90 percent of parity.

Support Operations for Eggs

Price support for eggs was carried out during the 1950 fiscal year, as in previous years, through purchases of dried whole eggs from processors in the Midwest—the area of heaviest domestic production. Under the purchase program for the 1950 calendar year, CCC purchased dried whole eggs packed in barrels or fiber drums at 96 cents per pound. Vendors selling to CCC were required to certify that they had paid producers 25 cents a dozen for eggs purchased at the farm or 27 cents a dozen for eggs delivered by the producer to the drying plant.

Operations under the support program were extensive. Contracts awarded provided for the purchase of 87,889,828 pounds of egg powder at a commodity cost of \$89,983,992. This quantity of powder is equivalent to approximately 8,788,983 cases of shell eggs. With the carry-over from the fiscal year 1949—that is, contracts awarded in June 1949 covering powder to be delivered in July 1949—contracted deliveries in the fiscal year 1950 totaled 81,939,888 pounds, or a shell-egg equivalent of approximately 8,193,989 cases, at a commodity cost of \$85,446,313.

On July 1, 1949, the CCC's inventory of dried whole eggs totaled 60,253,368 pounds, made up of 16,599,774 pounds of 1948 powder and 43,653,594 pounds of 1949 powder. This quantity, with the 87,889,828 pounds purchased during the fiscal year, made available a total of 148,143,196 pounds.

Disposition of Price-Support Eggs

Sales, commitments, and other dispositions of CCC dried-egg stocks during the fiscal year totaled 46,137,572 pounds. This quantity, taken from a total availability of 148,143,196 pounds, left the CCC with an uncommitted inventory at the end of the 1950 fiscal year of 102,005,624 pounds, made up of 5,883,148 pounds of 1948 powder, 26,816,942 pounds of 1949 powder, and 69,305,534 pounds of 1950 powder.

Disposition of price-support eggs during the fiscal year was made as follows:

	Program	Pounds
Section 32		4,474,786
Sales for export		1,529,934
ECA-British requisition		5,891,666
CCC-British contract		26,236,800
ECA-Belgium requisition		26,488
Section 416 Domestic Donation Program		3,091,081
Section 416 Foreign Donation Program		4,381,861
Miscellaneous dispositions		418,004
Redrying losses		86,952
 Total disposition		 46,137,572

(Some of the figures representing commitments are subject to revision when all deliveries have been completed and actual delivered quantities reported.)

Turkey Support Operations

The turkey price-support program was carried out through purchases of frozen, dressed, young turkeys during the marketing season from August 1, 1949, to December 31, 1949. In addition, it was

announced that offers would be received in July 1950, for turkeys in storage which were purchased from producers in 1949. In April 1950, it was announced that "there would be no price-support program on 1950 production of chickens (including commercial broilers) and turkeys." The announcement added that the commitment to purchase 1949 turkeys during July 1950 would be adhered to, however.

Under the support program the country was divided into four zones and producer support prices for live turkeys were announced and prices for dressed turkeys were designated for each month of the 1949 marketing season in each of the zones. Prices paid for dressed turkeys were based on differentials between weight classes, between grades, and between zones. Vendors were required to certify that they had paid producers support prices for all live turkeys purchased from August 1, 1949, through their contracted delivery date.

Through December 1949, purchases under the program totaled 8,648,473 pounds at a commodity cost of \$3,471,453.

Disposition of Price-Support Turkeys

All the frozen turkeys purchased for price support were disposed of before the end of the fiscal year. Export sales accounted for 141,170 pounds and 8,472,688 pounds were sold under section 32 for use in the National School Lunch Program. (The difference in total purchases and total sales is due to the fact that the purchase figure represents the contracted quantity, which was subject to a 1-percent delivery tolerance.)

Standards

"Rules and Regulations of the Secretary of Agriculture Governing the Grading and Inspection of Poultry and Domestic Rabbits and Edible Products Thereof and U. S. Specifications for Classes, Standards, and Grades with Respect Thereto" were promulgated to become effective January 1, 1950. Worked out with the cooperation of sub-committees of the Department's poultry industry advisory committee, the rules and regulations were first published in the Federal Register in September 1949 and several thousand copies were circulated to key industry groups, college and extension workers, State marketing officials, regulatory agencies, public health officials, and others. The regulations were modified slightly on the basis of views and comments received before official publication on November 15, 1949.

In an effort to acquaint poultry processors, health officials, regulatory agencies, State marketing officials, and other interested persons with the provisions of the regulations, standards, and grades, conferences were held in 8 key cities throughout the country during the first part of December 1949. To acquaint the industry with the provisions, 10,000 copies of a digest of the provisions and 10,000 copies of the Federal Register reprint were distributed.

The regulations were supplemented in the spring of 1950 by the addition of two sections. One section presented the forms of official identifications and the inspection marks which are satisfactory for use in grade labeling and in identifying poultry products as graded for quality, inspected for wholesomeness, or both. The other section set forth certain prerequisites which must be met before ready-to-

cook poultry may be graded. Briefly, it provided that a qualified plant employee must be designated to examine carcasses during the evisceration process for any condition that may render them unfit for food; and all such unfit carcasses must be condemned and denatured.

A broad, consumer-education campaign was under way at the end of the year to make known the reasons for revising the regulations and to demonstrate that the action will make available a more sanitarily processed, graded, and inspected wholesome food product. A new folder and a revised Farmers' Bulletin on grading turkeys were distributed in connection with this campaign.

PMA participated in the administration and conduct of a poultry-grading school, held in January 1950, at Broadway, Va., for prospective instructors for a large regional school and other schools to be held annually, and in an egg grading and marketing school held at Rhode Island State College in June 1950.

At a meeting held to consider the practicability and advisability of continuing the AA classification in official standards for quality and grades for shell eggs, a sub task group of the Department's poultry industry advisory committee recommended continuance of the classification and further that no major changes be made in the standards and grades for shell eggs until at least 1951.

A report entitled "Variations in State Standards and Grades for Eggs" was released during the year.

Container Tests

The publication entitled "Recommended Specifications for Standard Packages and Packs for Shell Eggs," was reissued after slight revision.

Work was started on United States Specifications for Standard Egg and Egg Product Packs and Packages. Recommended Specifications for Standard Packages and Packs for Poultry and Poultry Products were completed in preliminary form and submitted to the poultry-packaging sub task group and to poultry industry groups for suggestions and recommendations.

As a result of laboratory, transportation, and storage tests on egg cases and inner packaging materials, conducted during the year in cooperation with Government and industry groups, the following facts were determined.

A new-style filler with cells larger and wider than those in fillers currently used, and a new-style flat with wider cups and longer posts than those on flats commonly used, gave better protection to eggs in transit, in handling, and in storage than fillers and flats currently in use. As a result of these and other findings, the new-style fillers and flats, and egg cases that have a 13-inch minimum inside depth, are being adopted as standard by the trade.

A new corrugated case, because of its design, performed nearly as well as wooden cases and better than other fiber cases with which it was compared in storage tests. This case held up in transit and handling as well as two of the better standard fiber cases now on the market. It has a self-locking device which performed better and proved more economical than the taping of fiber egg case covers.

Tests showed that the better standard fiber egg cases hold up satisfactorily in cold storage for at least 5 months. The following factors were found to be important to performance of fiber egg cases in storage: Vertical rigidity, quality of fiberboard used, design of the case, the amount of ventilation allowed by the case, and the care exercised in handling and stacking cases.

As a result of these findings, a publication entitled "Inner Packing Materials for Egg Cases—The Results of Studies Conducted in 1948-49" has been distributed.

Research

Final reports relating to the survey of quality of eggs handled and deterioration in egg quality at country buying stations and central assembly plants, in the North Central States and Kentucky, were prepared and released. Results of the work, done in cooperation with State experiment stations, the Farm Credit Administration, the Bureau of Agricultural Economics, and producers and handlers, have focused attention on the importance of improving production and handling practices as a means of reducing egg-quality deterioration. Follow-up research is under way to determine practices, methods, and facilities needed to reduce quality deterioration from the standpoint of producers and handlers. This work also is giving consideration to reducing costs of country collection, plant operations, and movement of eggs. According to preliminary data, wide variations found in efficiency indicate that opportunities exist for decreasing costs of assembling eggs.

Preliminary results of a study of changes in egg quality during storage suggest that pronounced changes in quality do not begin prior to the third month.

A study of the quality of eggs available to consumers in 1,500 retail stores, made with the cooperation of eight experiment stations, showed that in the New England States about 86 percent of the eggs sold in retail stores were of A grade or better as compared with about 66 percent in the Northeast States excluding New England.

Research conducted on storage of thermostabilized shell eggs indicated that the process of thermostabilization thickened the white of the egg without visible signs of coagulation and prevented to a marked degree the thinning of the white which normally occurs during storage. The thermostabilized eggs retained their candled grade in storage to a better degree than did oil-treated and natural eggs. The albumen index was increased by the treatment and remained higher during storage than that of oil-treated eggs. Whipping quality, however, was impaired. Follow-up research will provide more conclusive results.

Results of a test to determine consumer reaction to thermostabilized eggs are now being summarized. Approximately 6,000 dozen eggs were processed in Kansas City, Mo., and shipped to Birmingham, Ala., for immediate sale. After regrading, the eggs were marketed through four stores in different parts of the city and customers purchasing the treated eggs were interviewed and requested to furnish information regarding use of the eggs and their reaction to the quality.

Cooperative work was carried on with the National Egg Products Laboratory on problems of washing dirty eggs and the efficiency,

cost of operation, and use of labor of several types of egg-washing machines. A distinct difference in the cleanliness of eggs washed, in breakage, and in use of labor was shown by the machines tested.

Work looking toward improvement of the sanitary quality of dressed and eviscerated poultry has revealed that a marked reduction in bacterial numbers built up in surface contamination through handling of dressed poultry can be brought about by using chlorinated water for washing, without altering the flavor of the poultry.

(The research described in this section was carried on under the Research and Marketing Act.)

SUGAR

Sugar programs are authorized by the Sugar Act of 1948, the Commodity Credit Corporation Charter Act, and the Research and Marketing Act of 1946.

The Sugar Act program aims to provide domestic household and industrial consumers with adequate supplies of sugar at reasonable prices which will, at the same time, fairly and equitably maintain and protect the welfare of the domestic sugar industry.

The total sugar requirements of consumers for each year are estimated by the Secretary of Agriculture. Quotas based on this estimate regulate the entry of sugar into the continental United States from foreign areas and the marketing of sugar by domestic areas. Payments are made to domestic producers of sugarcane and sugar beets who do not market in excess of specified quantities, who meet certain standards with respect to child labor, who pay wages deemed to be fair under the standards established in the act, and (in the cases of processor-producers) who pay other producers for sugarcane and sugar beets, prices that are determined by the Secretary to be fair and reasonable.

Sugar is procured by the CCC for other Government agencies which request CCC to perform this service. Marketing research is conducted on sugar and related products.

Consumption Requirements, Prices, and Quotas

Sugar-consumption requirements of consumers in the continental United States are estimated for calendar years, not fiscal years. The consumption requirement in effect at the beginning of 1949 was 7,250,000 short tons, raw value. This was changed to 7,500,000 tons on September 20, 1949, and remained in effect for the rest of the calendar year. The requirement for 1950 was set at 7,500,000 short tons and was unchanged at the end of the fiscal year.

The price of raw sugar, duty paid, was 5.85 cents per pound at the beginning of the fiscal year 1950. It reached its highest level of 6.05 cents during part of September and October 1949, and then declined to 5.45 cents in early April. By the end of the fiscal year it had recovered to the 5.85-cent level.

Refined cane sugar (New York basis price) was 0.15 of a cent per pound lower at the end than at the start of the fiscal year. The price of 7.85 cents prevailed from the beginning of the fiscal year until September 26, 1949, when it rose to 8.05 cents, remaining at that level

until February 5, 1950. Thereafter, price changes occurred as follows: February 6, 7.90; March 1, 7.80; and March 13, 7.70. On June 23 price advances to 7.85 and 7.90 were announced by various sellers, to become effective shortly after the start of the new fiscal year.

Statutory quotas are established by the Sugar Act for the five domestic sugar-producing areas—mainland cane, domestic beet, Hawaii, Puerto Rico, and the Virgin Islands—and for the Republic of the Philippines. The difference between the sum of these quotas and the amount of the consumption estimate is divided between Cuba and foreign countries (other than Cuba and the Republic of the Philippines) on a 98.64 percent and 1.36 percent basis, respectively. In addition, when one area cannot fill its quota, the unfilled portion (commonly known as a "deficit") is prorated to other areas which can supply the sugar.

During the last 6 months of 1949 quota deficits were declared for Hawaii of 200,000 tons and for the domestic beet area of 100,000 tons. The unfilled portion of the quota for foreign countries other than Cuba and the Republic of the Philippines was reallocated shortly after September 1, 1949, to those countries in this group which were able to supply the sugar. A deficit of 300,000 tons for the Republic of the Philippines was declared in the initial 1950-quota determination and a further deficit for this area of 150,000 tons was announced on June 14, 1950.

Basic and final adjusted quotas for the calendar year 1949 and those in effect at the end of the fiscal year 1950, which reflect the prorations of deficits, are shown in table 6.

The sugar quotas for Puerto Rico for both 1949 and 1950 were allotted to individual raw-sugar processors and refineries. In August 1949, preliminary allotments were revised to incorporate final instead of estimated production data in the allotment formula and to remove

TABLE 6.—*Basic and adjusted sugar quotas, by production areas, calendar year 1949, and as of June 30, 1950*

Production area	Basic quotas, calendar year 1949 and as of June 30, 1950	Adjusted quotas	
		Calendar year 1949	As of June 30, 1950
Domestic beet-sugar area	Short tons, raw value	Short tons, raw value	Short tons, raw value
Mainland cane-sugar area	1,800,000	1,500,000	1,800,000
Hawaii	500,000	548,773	500,000
Puerto Rico	1,052,000	652,000	1,052,000
Virgin Islands	910,000	1,091,401	910,000
Republic of the Philippines	6,000	6,000	6,000
Cuba	982,000	557,000	532,000
Other foreign countries	2,219,400	3,092,976	2,646,900
	30,600	51,850	53,100
Total	7,500,000	7,500,000	7,500,000

the limitation on marketings at 80 percent of allotments. Subsequent revisions were made in 1949 to distribute increases in the Puerto Rican quota arising from deficits declared for the domestic beet and Hawaiian areas. In January 1950, hearings were held in Puerto Rico regarding allotment of (1) its mainland quota, (2) the direct-consumption portion of its mainland quota, and (3) the quota for local consumption in Puerto Rico. Subsequently, preliminary allotments were made which remained in effect until the close of the fiscal year.

Wage and Price Determinations

Determinations of fair and reasonable wages for persons employed in the production, cultivation, and harvesting of sugar beets and sugarcane were issued for each of the five domestic sugar-producing areas. Wages for all areas—except Puerto Rico and Hawaii—were maintained at levels established in 1947, despite reductions since that time in the income of producers caused by lower sugar and molasses prices. The maintenance of the 1947-wage levels in three of the areas was made possible by lower costs of producers resulting from the use of mechanical equipment and changes in methods of production. In Puerto Rico, wages are tied to the prices of raw sugar and, as a result, wages increased or decreased with changes in sugar prices. In Hawaii, the collective bargaining agreements between producers and workers were reopened and the basic minimum wage of 78½ cents per hour for most plantations was revised upward to 80 cents per hour. A wage-price escalator under which wages increase when the average price of raw sugar exceeds \$116 per ton for a 3-month payroll period, was also adopted. If average raw sugar prices are lower than \$116 per ton, the basic minimum wage remains at the 80 cents per hour "floor."

In Puerto Rico, the Virgin Islands, and Florida no changes which would affect the application of wage rates were made in the determinations. In Louisiana, the relationship between the base sugar price and wage rates was adjusted to make wages more responsive to significant changes in sugar prices and producer income.

In the beet-sugar area two wage determinations were issued, one for California, southwestern Arizona, and southern Oregon, and the other for the remainder of the beet-sugar area. In the former, the 1950-crop determination continued the time rates of 60 cents per hour for production and cultivation work and 65 cents for harvesting work. Specific piecework rates were eliminated in the 1950 determination and those agreed upon between the producer and laborer were prescribed. Such rates, however, were subject to a guarantee of earnings to workers of not less than the hourly rates. This method of establishing piecework rates provided greater flexibility in the setting of such rates under the varying field conditions which are typical of these regions.

For beet-sugar regions other than California, southwestern Arizona, and southern Oregon, time rates were continued as in 1949 but the supplemental wage payments were eliminated. However, the amount of the supplemental payment for harvesting of \$2 per acre was divided between hoeing and weeding rates except in the eastern area where it was applied to the thinning and hoeing rates. This redistribution was made because the need for the supplemental wage payment had

diminished and to encourage better quality work in "summer" work operations. Minor adjustments also were made in the harvesting piecework rates. The adjustments were made to reflect worker performance more accurately.

Wage-claim procedure, although effective in prior years, was made more generally known to both producers and laborers by including in the determinations a provision setting forth the procedure to be followed by workers in filing wage claims.

Determinations of fair and reasonable prices were also issued for each of the five domestic sugar-producing areas. These determinations apply only to those producers who are also processors and who buy sugar beets or sugarcane from other producers. The determinations for all areas provided for about the same sharing relationships between processors and producers for average-quality sugarcane and sugar beets as in the previous year, although the determinations for Florida and Louisiana contained significant changes in the methods of determining fair prices. Changes in the Florida determination were made to provide for the sharing of total returns more in line with the current production and manufacturing conditions, while those in the Louisiana determination were made to provide an incentive to growers to deliver clean, fresh sugarcane.

The study of costs, returns, and related factors of the Hawaiian sugar industry, initiated in April 1949, was completed. Field work on similar studies for Puerto Rico, the Virgin Islands, Florida, and Louisiana was completed during the fiscal year. The basic data of these studies and an earlier one of the sugar-beet area were applied to data on current crops for use in administering the wage and price provisions of the Sugar Act. Other studies of importance initiated during the fiscal year were surveys of labor performance in thinning and harvesting of sugar beets, a study of man-hour requirements in the harvesting of sugarcane in Louisiana, a study of the quality of worker performance in the thinning of sugar beets, and a survey of the factors pertinent to the fair-price determination in Puerto Rico.

Payments to Producers

Under Title III of the Sugar Act of 1948, payments were made to almost 85,000 sugar-beet and sugarcane producers in the mainland beet- and cane-sugar areas, Hawaii, Puerto Rico, and the Virgin Islands, who qualified by meeting certain standards with respect to child labor, wage rates, proportionate shares established for the farms, and in the case of processor-producers, payment of fair and reasonable prices for sugar beets or sugarcane purchased from other producers. In addition, payments were made to sugar-beet and sugarcane producers to compensate them in part for crop losses resulting from specified causes.

The base rate of payment to producers is 80 cents per 100 pounds of sugar commercially recoverable, raw value. This rate is scaled down for farms which produce in excess of 350 tons of sugar and declines to a minimum of 30 cents per 100 pounds on that part of the farm's total production in excess of 30,000 short tons of sugar.

Restrictive proportionate shares must be established for farms in any area when sugar production and current supplies would be more

than the quantity required to meet the area's quota and carry-over requirements. In view of the large 1948-49 Puerto Rican crop, restrictions on marketings from the 1949-50 crop in this area appeared to be necessary to avoid an excessive carry-over of sugar at the end of 1950, and proposed restrictions were announced. However, on February 21, 1950, the restrictions were lifted because of changes in the world sugar-supply outlook and the necessity of meeting the sugar requirements of the Economic Cooperation Administration. In early 1950 it again appeared that production from the 1950-51 crop would have to be curtailed. At the close of the fiscal year it was not possible to determine whether the conflict in Korea which started in the last days of June, would affect 1950-51 production significantly.

The definition of a farm in Puerto Rico was revised on March 22, 1950. The definition is significant since proportionate shares are established on the basis of farms, and conditional payments, including abandonment and deficiency payments, are calculated on that basis. The revision affects only the farms operated by the Land Authority of Puerto Rico. It provides that any proportional-profit farm established by the Land Authority, in conformity with certain standards, will be considered a farm for the purposes of the Sugar Act, in lieu of the smaller administrative units which were formerly classified as farms.

A revised method for determining normal yields of sugar and eligibility for acreage-abandonment and crop-deficiency payments under the Sugar Act for sugarcane farms in Louisiana and Florida was adopted on September 30, 1949. The principal change provides for the use of three recent crops in establishing normal yields for the 1949 crop and a gradual transition to moving 5-year base periods.

Conditional payments to producers are computed on the quantity of sugar commercially recoverable from the sugar beets or sugarcane marketed from each farm. In October 1949, the methods of determining sugar commercially recoverable in the mainland beet- and cane-sugar areas were revised to reflect more current rates of recovery. The average reduction in payments was about 2 cents per ton of beets and about 0.8 cent and 1.5 cents per ton of cane in Louisiana and Florida, respectively. A significant simplification in procedure was embodied in a revised determination of normal yields for farms in the beet-sugar area, issued on March 10, 1950. This change will reduce substantially the work required in State and county offices.

The estimated total payments to be made in the various domestic sugar-producing areas, the part of these payments which relates to acreage abandonment and crop deficiencies, and the number of payees for the 1948 and 1949 crop years are shown in table 7.

Purchases for the Army and ECA

Approximately 220,000 short tons of 1949-50 crop raw sugar was purchased by CCC from 27 Puerto Rican producers in February 1950 at the world price of 4.60 cents per pound, basis 96° polarization, f. a. s. Puerto Rican ports. No other purchases were made during the fiscal year. This sugar was purchased on behalf of the Economic Cooperation Administration to meet a part of the civilian sugar requirements in Germany and Austria.

TABLE 7.—*Payments under the Sugar Act of 1948 and number of payees, in the several sugar-producing areas, crop years 1948 and 1949¹*

Payment and payee	Domestic beet-sugar area	Mainland cane-sugar area	Hawaii	Puerto Rico ²	Virgin Islands
Payments on sugar beets or sugarcane:					
1948	Dollars 21,817,000	Dollars 6,958,000	Dollars 7,629,000	Dollars 15,268,000	Dollars 66,000
1949	26,400,000	6,650,000	8,438,000	17,680,000	66,000
Abandonment and deficiency payments:					
1948					
1949					
Total payments:					
1948	Dollars 23,228,000	Dollars 7,258,000	Dollars 7,629,000	Dollars 15,500,000	Dollars 66,000
1949	27,050,000	7,150,000	8,438,000	17,680,000	66,000
Payees:					
1948	Number 46,000	Number 10,200	Number 1,100	Number 14,000	Number 500
1949	55,000	10,500	1,300	15,300	500

¹ Preliminary.² 1947-48 and 1948-49 crops.

During the fiscal year a total of approximately 573,000 short tons of raw sugar, consisting of 365,000 short tons of 1949-crop Cuban raw sugar, purchased during the previous fiscal year, and 208,000 short tons of the 1949-50 Puerto Rican sugar, was shipped by the Department of the Army to Germany and by the ECA to Austria and Germany. The Army shipped about 187,000 short tons to Germany while ECA shipped approximately 54,000 tons to Austria and 332,000 tons to Germany. Only a small balance of the 1949-50 Puerto Rican sugar was unshipped at the end of the year.

At the close of the fiscal year, the Department of the Army was obtaining from Pacific areas of supply most of the sugar needed for civilian feeding in occupied areas, and countries participating in the European Recovery Program were purchasing their sugar requirements through commercial channels.

Marketing Research

Competitive relationships between sugar and corn sweeteners are to be described in a research report being prepared for publication at the end of the year. A major part of the report will consist of analyses of information collected from bakers, confectioners, canners, preservers, and manufacturers of soft drinks, ice cream, and frozen foods relative to the types of sweeteners used by them and the major factors influencing types and amounts of sweeteners used. Factors such as price differentials, physical and chemical properties of the various sweeteners, and Federal and State laws pertaining to the use of these sweeteners in processed foods have been analyzed and will be included in the report. Data to be published will include statistics on usage of sugar, dextrose, and corn syrup by major types of industrial users and delivered prices of the different sweeteners over a long period of time. A system of voluntary reporting of quantities of sugar and dextrose which are currently being used by the various industries has been instituted in connection with this research. Information supplied quarterly since January 1, 1949, by primary distributors of these products cover 100 percent of the dextrose and approximately 97 percent of total sugar distribution within the continental United States.

The factors on which proposed USDA quality standards are to be based have been determined from information and recommendations of producers of liquid sugar, refiners' sirups, edible sugarcane molasses, and sugarcane sirups and from the results of analyses of representative samples of the products named. These factors are (1) Brix solids, (2) sucrose, (3) reducing sugar, (4) sulfated ash, (5) sulfites, (6) pH, and (7) color. All necessary laboratory work has been completed except for the work on color of liquid sugars where more exact methods and requirements are needed for color standards. The results of this work will make possible the formulation of Federal inspection and grading systems for all of these products. Reports of the analytical results of this work are being prepared for submission to technical journals for publication.

A report entitled "Marketing of Sugarcane in Louisiana" has been published as a part of a project on marketing practices in the domestic sugarcane areas. This report describes current marketing practices in

Louisiana, summarizes the most important economic factors affecting the marketing of sugarcane there, and points out certain undesirable marketing procedures that exist. Recommendations were made that certain changes be made in the Louisiana cane-purchase contract in order to stimulate more efficient marketing of Louisiana sugarcane. The field work on the Puerto Rican phase of this project has been completed, and the results are being tabulated and analyzed.

Widespread interest has been shown by the molasses, feed, and alcohol industries in the material included in the report entitled, "The Marketing of Feed Molasses," published in connection with the study on the marketing of industrial molasses. Since publication of this report additional information has been collected concerning the movement of industrial molasses to consumers through various sources of supply, the costs incurred by various distributive groups in marketing molasses, the physical methods of handling molasses, and market supplies of molasses for all industrial utilization.

Studies of the marketing of sugar beets and raw and refined sugar have been initiated. These include analysis of the methods and practices used in marketing sugar beets and the natural, economic, and institutional factors affecting marketing. A comprehensive analysis of the marketing practices and costs in the movement of raw sugar from mill to refiner, the importation of raw sugars, the functions of the marketing agencies concerned, the sales practices of raw-sugar processors, and the buying practices of refiners has been begun. Analysis is being made of the methods and practices in the distribution and pricing of refined sugar, including special attention to the marketing of this product in liquid or bulk granulated form.

(The research projects described in this section were carried on under authority of the Research and Marketing Act of 1946.)

TOBACCO

Tobacco production in 1949 totaled 1,970,376,000 pounds, as compared with the 1939-48 production of 1,777,945,000 pounds. Prices of the major types were supported throughout the fiscal year 1949, but support operations were carried on at no net loss to the Commodity Credit Corporation. Federal inspection and market news services were available free of charge to producers on all tobacco sold at auction.

Price Support

A tobacco loan program was operated during the year on United States and Puerto Rican tobacco. Loans were made at 90 percent of parity on the various kinds of tobacco placed under loan, except fire-cured, on which loans were made at 75 percent of the burley rate, and dark air-cured, on which loans were made at 66½ percent of the burley rate. Average loan levels were as follows: Flue-cured, 42.5 cents per pound; burley, 40.3 cents; fire-cured, 30.2 cents; dark air-cured, 26.9 cents; Maryland, 41.8 cents; Connecticut Valley Havana seed, 42.9 cents; Connecticut Broadleaf, 40.6 cents; Northern Wisconsin, 25.7 cents; Southern Wisconsin, 19.8 cents; and Puerto Rican, 31.5 cents.

Loans on 181,321,233 pounds of tobacco totaled \$65,351,000 during

the fiscal year. About 9 percent of the 1949 crop was placed under loan, as compared with 13 percent of the 1948 crop.

Adjustment Operations

Marketing quotas were in effect for 1949-crop burley, flue-cured, fire-cured, and dark air-cured tobaccos after approval by farmers voting in referendums. More than 90 percent of the farmers voting favored quotas. None of the other kinds of tobacco were in a quota position.

Quotas were approved by growers for the 1950-crop of five kinds of tobacco. These quotas, together with acreage allotments established, were as follows: Burley, 496,000,000 pounds and 421,500 acres; flue-cured, 1,097,000,000 pounds and 969,792 acres; fire-cured, 62,500,000 pounds and 56,834 acres; dark air-cured, 30,200,000 pounds and 26,225 acres; and Virginia sun-cured, 3,579,000 pounds and 4,000 acres.

Export Operations

In the fiscal year 1948, approximately 6,500,000 pounds of the dark types of tobacco were acquired by the Commodity Credit Corporation and placed under option for the tobacco monopoly of the French Government. Financial problems delayed the exercising of this option until the last half of the 1949 and the first half of the 1950 fiscal years. All stocks acquired were shipped.

Inspection

Inspection service was maintained on all established auction markets—a total of 169—during the fiscal year. Approximately 1,956,000,000 pounds of tobacco were inspected, representing 100 percent of the total sold at auction. In addition, approximately 168,000,000 pounds of tobacco in hogsheads were inspected for cooperative marketing associations in the flue-cured, burley, fire-cured, and dark air-cured tobacco producing areas. Furthermore, approximately 736,000 pounds of Wisconsin cigar leaf, 3,302,000 pounds of Connecticut-Massachusetts cigar leaf, and 12,252,000 pounds of Puerto Rican cigar-leaf tobacco were inspected.

Technical Assistance and Training Activities

To improve the preparation of tobacco for market, PMA demonstrated proper techniques to about 64,000 tobacco growers. Four 1-week short courses in tobacco standards and specifications as well as preparation of tobacco for market were held at State colleges. Training courses and grading tests for inspectors were held to increase the efficiency of the inspection service.

Market News

Market news was furnished to all auction markets. Altogether, 1,387 different reports were prepared and about 1,180,000 copies were distributed to newspapers, radio stations, individual growers, members of the tobacco trade, and others.

Daily and weekly reports were furnished from 2 permanent offices at Raleigh and Louisville, and from 11 temporary offices set up at points in the various belts. Market news on 14 types of tobaccos was provided on 973 auction sales floors, located in 169 markets in 12 States. Cooperative agreements covering market news were continued with the State departments of agriculture of North Carolina, Virginia, Tennessee, Kentucky, West Virginia, and Maryland.

Tobacco Stocks and Standards Act

The Tobacco Stocks and Standards Act of 1929 requires a quarterly report of stocks of leaf tobacco owned by dealers and manufacturers. This information, released in the Tobacco Stocks Reports, was based on schedules received from about 1,200 dealers and manufacturers in the United States and Puerto Rico.

The Annual Report on Tobacco Statistics for 1949, also required by the Tobacco Stocks and Standards Act, was released in December 1949. This publication is a compilation of the most frequently used statistics relating to tobacco.

Activities Under the Research and Marketing Act

Extensive physical and chemical studies were made in an effort to establish a more scientific method for use as a guide in appraising and designating the grades and qualities of tobacco.

Investigations also included studies on the moisture content of tobacco as related to its keeping quality, studies of the "body" of tobacco as related to its weight per unit surface, and studies of the relationship of the length and width of leaves to the yield of binders and wrappers in cigar-leaf tobacco.

An analysis of the effect of overexpansion of facilities on returns to warehousemen and tobacco farmers was being made at the end of the fiscal year. This analysis, together with a study of "economy scale" in the operation of warehouses, will be used in evaluating the efficiency of operation of auction markets.

PMA cooperated with the Connecticut Agricultural Experiment Station and with the Wisconsin Agricultural Experiment Station and State Department of Agriculture in an over-all study of cigar-leaf marketing.

PMA also cooperated with the Bureau of Agricultural Economics in a study designed to test or appraise sampling methods and the adequacy of the sample now being used in market news reporting.

Other Research

Valuable information was obtained from experiments in testing and controlling the moisture content in dark tobacco packed for the Commodity Credit Corporation. Additional tests are planned for the flue-cured, burley, and Maryland areas during the 1950-51 marketing year.

After investigation of the methods used by farmers in growing, curing, sorting, and marketing Connecticut Broadleaf (Type 51), and Connecticut Havana Seed (Type 52) tobaccos, and the methods employed by dealers and manufacturers in appraising the various grades

and degrees of quality of these tobaccos, tentative grades for these two tobacco types were established.

Investigation was made of Pennsylvania Seedleaf tobacco (Type 41) preliminary to establishing tentative standard grades. Some refinements and revisions were made in the specifications for the standard grades of Puerto Rican cigar-filler tobacco (Type 46) and in the tentative standard grades for Southern and Northern Wisconsin tobaccos (Types 54 and 55).

Improved procedure for testing and measuring "burn," an important factor of quality in cigar-leaf tobacco, was developed during the year.

NAVAL STORES

In 1949 there was a 2-percent increase in the combined production of gum and wood turpentine and a 5-percent decline in gum and wood rosin output. At the same time, exports only partially recovered their prewar volume, and domestic consumption, particularly of rosin, showed a continued tapering off from wartime levels. As a net result of these trends, turpentine and rosin prices were under pressure during the fiscal year 1950, and producers of gum naval stores found themselves increasingly dependent upon the Commodity Credit Corporation's price-support program.

Price-Support Operations

The 1949 crop of gum naval stores was supported at 80 percent of parity, or \$114.08 per production unit (50 gallons of turpentine and 1,400 pounds of rosin), with rates of 40 cents per gallon of turpentine and \$6.72 per 100 pounds of rosin, N grade. About 20 percent of the gum turpentine crop and 38 percent of the gum rosin crop were pledged under the loan program, as compared with 23 and 47 percent, respectively, of the 1948 production. Loan advances to producers under the 1949 program aggregated \$13,600,000, as compared with \$19,500,000 under the 1948 program.

The support level for the 1950 gum naval stores crop, announced November 30, 1949, was set at 60 percent of parity for the naval stores production unit. The initial loan rates on turpentine and rosin, as such, are 40 cents per gallon of turpentine and \$4.77 per 100 pounds of rosin, N grade. No 1950-crop naval stores were placed under loan during the fiscal year 1950.

Through a redemption pool administered by the American Turpentine Farmers Association Cooperative, nearly 737,000 gallons of turpentine and 7,170 drums of rosin were redeemed from the 1949 loan by individual producers. Unredeemed turpentine from the 1947, 1948, and 1949 loan programs, aggregating 3,369,000 gallons, was sold for export. After the announcement of availability of rosin for export or domestic sale, approximately 5,400 drums were sold, principally in April 1950. Both turpentine and rosin liquidations were carried out so as to minimize interference with commercial marketing and current price-support operations.

Regulation

Three lines of activity are carried on under the Naval Stores Act of 1923: (1) Inspection of naval stores upon request by interested parties,

(2) establishment of standards for naval stores products, and (3) the regulation in interstate commerce of naval stores to prevent adulteration, mislabeling, or other malpractices.

Inspection and certification of rosin totaled about 810,000 drums in the fiscal year 1950, as compared with 912,000 the previous year. Turpentine inspected and certified was the equivalent of 8,335,000 gallons, as compared with 6,271,000 gallons in the fiscal year 1949.

The shift of crude-gum processing from about 1,200 country fire stills to about 30 large central steam-processing plants has made necessary some change in inspection operations. To provide proper inspection, PMA has set up a procedure for continuous batch sampling and inspection by licensed inspectors at the central plants. Before inspection is established in a plant, the plant must qualify as an "eligible processing plant." One or more of the plant employees found to be qualified to do inspection work immediately or after training are granted authority to act as official licensed inspectors. The work of the licensed inspectors is closely supervised by PMA inspectors.

The reduction of excessive acidity in gum turpentine was the principal standardization problem dealt with during the year. A field survey showed that high-acid turpentine was coming from certain central processing plants where faulty design and operation were involved. A slower rate of distillation and some modification of plant equipment brought acidity down to safe limits.

Other standardization work included research on: (1) Methods for determining the total acid number of turpentine; (2) methods for determining the acid and saponification number of dark-colored rosin; (3) a tentative method for determining volatile oil in rosin; (4) sensitivity of qualitative and quantitative test methods for determining the presence and quantity of rosin acids in soap; (5) properties of a new kind of rosin made from tall oil; and (6) a method developed by the American Society for Testing Materials for determining unsaponifiable matter in rosin.

Under its regulatory program, PMA collected 166 samples of turpentine and rosin to check on adulteration, mislabeling, and other malpractices forbidden by law. No formal citation notices or prosecutions were instituted, but a total of 12 informal notices were issued.

Market Information

The weekly report showing average prices paid at processing plants for crude gum delivered by producers, initiated near the end of the fiscal year 1949, was issued regularly throughout the fiscal year 1950.

Current information from foreign service offices located in the principal naval stores producing and importing areas was collected by PMA in cooperation with the Office of Foreign Agricultural Relations and the State Department. This information and data from other sources were brought together in a review and analysis of international naval stores developments during the period 1934-49. The review, scheduled for issuance during the fiscal year 1951, is intended as a forerunner of semiannual reports on the foreign naval stores situation.

(The following sections have to do with PMA activities that involve all agricultural commodities.)

AGRICULTURAL CONSERVATION PROGRAM

Substantial gains were made during the year in controlling soil erosion and otherwise protecting the Nation's soil and water resources. Conservation practices were carried out on 2,588 thousand farms, comprising 62 percent of the Nation's cropland.

Cooperating farmers, encouraged and aided by assistance provided under the Agricultural Conservation Program on a share-the-cost basis—

Seeded 5,035,975 acres of pasture.

Constructed 58,261 dams for livestock water.

Established 17,379,703 acres of green manure and cover crops.

Built 443,328,000 linear feet of terraces.

Farmed 3,336,249 acres of intertilled and 2,539,575 acres of close-sown crops on the contour.

Carried out contour strip-cropping on 229,075 acres.

Constructed 39,787 dams for erosion control (storage type) and 1,642 dams for irrigation.

Applied 24,433,957 tons of liming materials, 3,109,792 tons of phosphate (20% P_2O_5 equivalent), to aid in establishing and maintaining stands of grasses and legumes.

Planted 95,573 acres of forest trees and shrubs.

The accomplishments of 1949, added to conservation measures carried out since the beginning of ACP in 1936, have increased materially the country's assurance of a continued abundant production from the land.

An appropriation of \$257,000,000 provided the positive and direct assistance that enabled many farmers to carry out essential conservation practices on their individual farms. This assistance, however, limited to \$750 per person, represents but a small part of the value of the conservation practices carried out. Farmers, matching with their own funds and labor the assistance provided and carrying out additional conservation measures because of the encouragement and aid given, more than doubled in value of conservation practices the funds made available through the appropriation.

Conservation work was further stimulated through the "Farmer's and Rancher's Conservation Program" initiated during the last half of the 1949 fiscal year in a few counties and expanded to 73 counties in 33 States in 1950.

Under this program, farmers were encouraged to develop their own conservation programs and then available assistance from all sources—Federal agencies, State and local groups, and private enterprises—was fitted to the needs of the individual farm insofar as possible and practicable.

This work has accelerated thinking and action in meeting conservation problems on individual farms, problems which, although they are local in nature, vitally affect the national welfare. It has served to cause farmers to inventory the condition of each part of their farms, recognize the conservation problems, and outline their programs for meeting the problems. This approach will provide more complete and exact information, farm by farm, as to the conservation problems which exist and the extent to which they exist, making it possible to develop and operate a more effective agricultural conservation program for the country.

Beginning also in the latter half of 1949 was the experimental program in Puerto Rico to coordinate and unify the Coffee Conservation Program of the insular government and the Agricultural Conservation Program. Under the unified program producers are required to carry out coffee and agricultural conservation practices and certain secondary or nonpayment practices, in order to qualify for program assistance. Under this program the insular government furnishes financial aid for carrying out certain conservation practices and the Agricultural Conservation Program furnishes financial aid for carrying out certain other conservation practices. This approach is working out in a satisfactory and effective way and it eliminates duplications.

As in previous years, administration at the county and community level of the Agricultural Conservation Program was in the hands of locally elected farmer committees. There is one of these farmer committees in every agricultural county and community in the country. Although they are paid for only a few days a year when they are actually engaged in program work, they are "on call" at all times to advise with and assist their neighbor farmers on matters pertaining to the conservation program.

Nonpartisan elections are held each year for the selection of these committeemen.

MARKETING FACILITY AND CROSS-COMMODITY MARKETING RESEARCH

Good progress was made during the year on work to improve facilities, equipment, and methods of handling farm products in terminal and secondary markets. Much headway also was made on research aimed at improving the packaging, grading, transporting, and retailing of farm commodities. These and other activities, discussed very briefly in this chapter, were carried on largely under authority of the Research and Marketing Act of 1946.

New or Improved Market Facilities

Background: PMA cooperates in the development and promotion of efficient market facilities in terminal markets and producing areas. To determine defects, studies are made, upon request, of conditions prevalent in a particular market. Conclusions are reached as to the design, size, and type of facility that will serve most efficiently. Estimates are made of the cost of constructing the facility and of the savings that would result from operating in it. Definite recommendations are made in a report, which is presented to all the groups concerned in a particular market. After presentation of the report, continued assistance is given until the market facilities recommended have been constructed and put into successful operation.

High lights of marketing facility work at the end of the year were as follows: Construction of a new \$4,000,000 produce market following a study by PMA will be completed in St. Louis in 1951. Plans were under way for construction of a \$14,000,000 market at Boston. Trade groups expected to move into new facilities at Hartford by April 1, 1951. Construction of markets at Indianapolis and San Antonio was scheduled to begin late in 1950. Plans were being drawn up for 10

additional units for the Dallas market, which was built after an earlier study. Contracts have been let covering some of the construction on a new market at Columbia, S. C. Development of a new market at Richmond was expected in 1951. Local interest in new facilities at Baton Rouge, La., was strong, although no promotional work was undertaken this year.

Although plans were only in the formative stage, or progress had been delayed for one reason or another, local groups were interested in new markets which have been planned at New Haven, Columbus, Houston, Milwaukee, Baltimore, Cleveland, Huntington, W. Va., Louisville, Little Rock, Savannah, Tulsa, Tyler-Jacksonville, Tex., Raleigh, Norfolk, and San Juan, Puerto Rico.

New markets have already been constructed at Augusta and Atlanta, Ga., Kansas City, Jackson, Miss., Greenville, S. C., and Trenton, N. J. Existing markets have been improved at Miami, Fla., and Benton Harbor, Mich.

Requests for market studies were received from more than 30 additional localities. It appeared unlikely, however, that more than 10 of these requests could be met during the coming year.

Work was continued under the "Marketing farm products" appropriation to determine basic principles to be followed in planning market facilities.

A study of factors that govern the success of a wholesale market for farm products in producing areas showed that many successful markets were subsidized for periods of 1 to 5 years before they became self-supporting. Other factors observed were: (1) The large extent to which markets provide an outlet for "cash crops"; (2) the tendency for truck shipments to move directly from markets to consuming centers; (3) the tendency for many markets to specialize in only one or two commodities; and (4) the relationship between management, volume of sales, and number of buyers on the success of the market.

Preliminary work was done to determine what location, type of construction, size, equipment, and method of operation are most efficient for country elevators. Eighteen elevators in Indiana were studied, but analysis of the data obtained had not been completed at the end of the year.

A study of poultry- and egg-marketing facilities in 30 cities showed that present facilities frequently are poorly designed and unsanitary, and that they lack unloading platforms, processing rooms, refrigeration, and rail connections. These shortcomings mean delays and excessive handling, and result in increased handling costs. Intensive local research is required in specific instances before recommendations for improvements can be developed.

Progress was made in determining the amount of floor space needed in produce stores to handle specified volumes of commodities.

Frozen Food Facilities

The first phase of a study designed to show the relation between locker plants and home freezers in the distribution of frozen food in Arizona was completed during the fiscal year. The report on the study points out where improvements in the arrangement of facilities and equipment could do much to increase the efficiency of locker

plants and throws light on such faults as use of poor packaging materials and improper wrapping techniques, lack of sufficient cold-storage space, and poor merchandising programs. The report also covers a survey of representative home-freezer owners to show the extent to which these home units are now being used and the degree to which the owners depend on services and facilities offered by locker plants.

A study of methods and facilities used in handling frozen foods was made to discover some of the inadequacies of such facilities, and what types of facilities and methods are most efficient. A report on the findings pointed out that chief problems of the frozen food industry are locating plants where the most complete utilization can be made; developing more low-temperature transportation facilities; designing warehouses for more efficient handling; improving wholesalers' plant lay-outs; planning better delivery systems and improved delivery facilities; developing more and better retail facilities; increasing holding facilities for institutional and industrial users; designing more efficient locker plants; using better equipment; and improving low-cost packaging materials.

Also initiated was a study to determine the most important factors to be considered in designing plant lay-outs for wholesalers of frozen food. The study showed that some wholesalers could improve their operations with relatively minor changes; others would have to make substantial alterations; and still others could obtain an increase in efficiency only by building entirely new facilities.

Materials Handling

Comparative time-study observations in fruit and vegetable warehouses showed that substantial reductions in man-hour requirements are possible through the adoption of more efficient methods of performing handling operations with equipment now in use. As an illustration, the studies showed that for certain operations it is possible to reduce total man-hour requirements as much as 40 percent through effective use of two-wheel hand trucks and adoption of more efficient methods. A study of stacking methods used in cotton warehouses showed that a simple change in the sequence or order in which bales were placed in the stack makes possible a reduction in the size of the stacking crew, while, at the same time, maintaining or exceeding the usual rate of stacking. It has been found, for example, that a stacking crew of four to six men may be reduced to three with no loss (and frequently with a gain) in production. It also has been found possible to reduce crew size required for moving bales from eight men to three men through the substitution of industrial trucks for hand trucks. This saving in labor is offset to some extent by the cost of ownership and operation of the industrial truck.

Merchandising, Packaging, and Other Marketing Functions

Preliminary results of one study showed that mechanical dispensers of pure orange juice (frozen orange concentrate) increased retail sales. The data further indicated that there is greater efficiency and economy in serving juice by this method than by methods previously used.

A supermarket chain cooperated with PMA to test the feasibility of merchandising hardware, home appliances, and textiles in two food supermarkets. After a time, all home-service lines were discontinued except textiles, and self-service was dropped in favor of the conventional department-store-basement type of operation. Over-all results were inconclusive.

Consumer reaction to various merchandising practices for citrus fruit was studied through ascertaining changes in sales and demand. Results indicated that (1) a substantial majority of the consumers preferred to buy oranges by count rather than by weight; (2) at about the same price per pound consumers preferred to buy bagged oranges over bulk; and (3) at the same price consumers preferred 5-pound and 8-pound bags to other sizes tested.

Time-study analyses were made of several operations in 16 self-service retail food stores representing various methods, equipment, and lay-out. Application of the principles of motion economy to each of various types of operation—receiving, checking, price-marking, moving merchandise to sales floors, and stocking shelves—brought about considerable improvement in man-hour productivity. Development of new check-out units increased operations at the checking counter from 32 to 44 orders per hour per man.

Prepackaging of Perishable Food Products

A successful method of prepackaging apples in transparent film bags was developed and commercially adopted by several apple shippers in the Northwest. A system of semimechanically bagging apples in film bags reduced by about half the labor expense of filling the bags manually. This system made use of a bagging chute, also developed under this research project, for which a public patent has been applied. A paperboard shipping container was considerably less expensive than wooden boxes, and proved satisfactory under commercial conditions. These savings, in addition to savings found in reduced labor expense in retailing and less waste and spoilage, enabled the marketing of prepackaged apples at approximately the same cost as that for bulk apples. Sales tests showed that consumer acceptance of prepackaged apples in most instances was much higher than of bulk apples because of the increased shopping convenience and higher quality of the product.

For broccoli, cauliflower, and sweet corn, it appears profitable to the grower to prepackage them when he can thus increase his yield of marketable produce and when market prices are favorable. On the other hand, when high-quality produce is abundant and prices low, it would be less profitable to prepackage owing to relatively inflexible packaging costs. It appears that prepackers of vegetables should maintain a more or less flexible position so as to take advantage of variation in quality of crops and prices.

It was found during the year that the cost of prepackaging spinach can be reduced if the spinach is clipped at the source of production, as it costs prepackers almost 30 cents more per bushel to prepare root spinach for packaging than the clipped product. It was also found that the excessive printing of advertising material on transparent film bags for spinach and kale not only adds to expense of packaging but

also reduces consumer acceptance because of poor visibility of the product.

Plans for a tomato-prepackaging plant facility were developed on the basis of a study of the efficiency of equipment, plant lay-out, and methods of ripening and prepackaging tomatoes.

Information obtained on the cost of rewrapping prepackaged meats and poultry products indicated that breakage of the cellophane wrappers was the chief cause for rewrapping. This information was made available to film manufacturers to stimulate the production of a more durable film. Other important causes of rewrapping were discoloration of the meat and leakage.

Transportation Trends

An analysis of the transportation situation at the end of the year indicated that railroads continue to haul a greater total volume of agricultural tonnage than their competitors. In the case of some individual commodities, however, such as livestock and eggs, the volume transported by motortrucks exceeds that hauled by railroads. There has also been an increasing movement of fresh fruits and vegetables by motortrucks since the end of World War II, and it is now estimated that trucks transport about half of the total volume of intercity traffic in these commodities from producing areas to consuming markets. With a continuing high level of production and consumption of goods of all kinds, an increasing diversion of railroad traffic to truck lines is reflected in the decline in total tonnage of the railroads over the last several years.

The number of worn-out cars retired and a larger-than-usual number of unserviceable cars exceeded new and reconditioned cars. As an indication of the continued decline in numbers of new cars being built, the number on order as of May 1, 1950, was 31,748, as compared with 57,429 a year earlier.

As the number of railroad cars has declined, the number of trucks has increased. This is indicated strikingly by data on truck registrations reported by the Bureau of Public Roads, Department of Commerce. On January 1, 1950, there were 7,692,569 private and commercial trucks registered in the United States, as compared with 4,513,340 on January 1, 1945, and 4,590,386 on January 1, 1941.

Inland, lake, and coastwise facilities for the bulk movement of agricultural commodities and fertilizer are adequate for all peacetime needs. Package freight facilities, however, have declined in recent years.

Air transportation of agricultural commodities is mostly confined to flowers and specialty and luxury food items. The volume, though relatively small, is growing.

Utilization of Transportation Equipment

A statistical unit called the "movement ratio" has been developed by PMA to indicate the effect of operating policies and practices upon the quality of freight service provided by railroads. The movement ratio formula has been applied to 36,000 sample carloads of agricultural commodities. This survey was expanded during the year to include typical movements of citrus fruits and frozen concentrate from Florida

to northern markets, and at the end of the year a record of these movements was being compiled. PMA will recommend that the unit which lends itself to correlation with certain standard operating performance averages be used by railroads.

A study of the effect on movement and distribution of agricultural products in Baltimore and Philadelphia, growing out of a lack of reciprocal switching arrangements and absorption of switching charges, was made during the year. It was found that in almost all instances the shippers and receivers of agricultural products were able to avoid payment of switching charges by routing their shipments over the line that directly served the plant or facility to which or from which the shipments were destined. It was further found that most of the present difficulties in these two cities resulted from duplicate market facilities.

Improvement of Transportation Equipment

An appraisal was made of the several kinds of refrigerator car equipment in common use and in the experimental stage, including the standard refrigerator car, types utilizing dry ice and dry ice with water ice as a secondary refrigerant, an experimental car employing the split-ammonia system, and a mechanical refrigerator car. Approximately 20 test runs of the mechanical car proved the ability of the car to provide temperatures ranging from below zero to 70° F. above zero within the range of climatic, sectional, and seasonal conditions in the United States.

A study of proper features of truck and trailer design and methods of application of various types of refrigerating media was undertaken during the year. Work was limited to the collection and assimilation of data on motortruck and trailer construction, specifications, and performance. Actual observation of truck shipments and test runs will be made during the fiscal year 1951.

Tests and experiments were carried on to determine relative abilities of various types of equipment to transport frozen foods. Twelve tests were made during the last quarter of the fiscal year, and at the end of the year data obtained were being analyzed.

Preliminary work, aimed at developing more efficient and economical means of transporting grain, entailed the assembly of information on existing facilities, both of cars and elevator equipment, including methods of loading and unloading. As the work progresses during the coming fiscal year, representatives of carriers and railway equipment manufacturers will be invited to take an active part.

Improvement in Loading Practices

Detailed observations of peaches shipped in bushel baskets and wire-bound boxes indicated that both baskets and boxes could be loaded in refrigerator cars four layers high instead of three layers, as at present, without any additional increase in damage and, in most instances, without a significant decrease in refrigeration efficiency in transit. Savings in transportation costs could be as much as \$84.70 per car on peaches shipped from Macon, Ga., to New York City.

Research on in-transit damage in 1,680 carloads of shell eggs revealed that damage during transportation, due to faulty loading

methods, could be reduced as much as 60 percent by eliminating all lengthwise slack in the loads before shipment. It was also shown that 5-layer loads resulted in about 50 percent more damage than 4-layer loads.

Another study showed that Black Diamond or Cannon Ball varieties of watermelons suffer less damage in transportation than any other commercially important variety, and that substitution of excelsior pads for hay or straw for end-wall padding in refrigerator cars reduced damage about 10 percent.

Preliminary results of shipping tests revealed that the use of a single strand of wire around the middle of standard lettuce crates reduced breakage in transit by almost half. It is estimated that industry-wide use of the wire would eliminate damage costing \$350,000 annually.

Possible Expansion of Market News and Grading

An appraisal of market news services now provided showed a general lack of retail market news information, market news on processed fruits and vegetables, naval stores, fats and oils, molasses, and sirups, and the need for (1) increased market news reporting in the country producing areas; (2) the reporting of truck movement and truck receipts; (3) improvements in the dissemination of information; and (4) relief reporters to maintain the conformity of the service.

A pilot market news study was undertaken, by means of which methods were developed to report, for the first time, net prices being paid in the producing areas for butter, in order that individual creameries might have a basis for judging the adequacy of their returns. The reports were sent on a trial basis to a sample of creameries, farmers, butter dealers, fluid milk cooperatives, and others.

Uniform terms were adopted for use in reporting livestock market news. During the year 16 livestock market news offices, after a study of the various services provided, discontinued the issuance of daily mimeographed reports on the ground that the public interest was adequately served through market news carried in newspapers or over radio stations, and in the weekly reports.

An experimental retail market news service was begun in Baltimore, Md., to develop methods of reporting retail prices and volume of sales, and to determine the cost and value of such a service. All retail market news services now being conducted by State and municipal agencies were studied to determine what contribution these services were making to marketing. The study showed that most of the individuals receiving the reports used the information; also, that such a reporting service would help keep retail prices for individual commodities on a more competitive basis.

A report was published analyzing existing market news services for frozen commodities. The report points out a need for information on movement of frozen foods into consumption; production data on poultry and fish; detailed information on storage stocks by retail, institutional, and industrial sizes; and storage holdings on poultry and fish to show the type of trade for which these products were packed.

A study of the adequacy of grades and standards was begun to establish criteria for improving the standards for grades now used and the application of these standards for grades. As one phase of this work, it was found that the different quality factors used in grades do have measurably different effects on prices paid and hence should be given different weights in the establishment of different grades; for example, it was found that bruising and/or fleshing of poultry affected market prices about 2½ times as much as did pinfeathers and/or tears. The study also showed that differences of judgment exist among graders and that settling these differences entails the development of consistency in judging each individual quality factor.

FOOD DISTRIBUTION PROGRAMS

The scope of PMA's food distribution programs increased during the year, reflecting the more difficult problems faced by agriculture in achieving a balance between national food production and consumption levels.

School Lunch Program

Participation in the national school lunch program—7.8 million children in 54,000 schools—established a new record during the fiscal year 1950. Purchases of food from local suppliers by participating schools amounted to \$181,000,000, and contributed to the objectives of the program which are to improve the diets, and thus the health, of school children and, at the same time, expand the domestic food market.

Congress appropriated \$83,500,000 for 1950 operations under the National School Lunch Act. Of this amount, a total of \$64,565,000 was made available as cash food assistance grants to States, and \$17,420,000 was available for the direct purchase of commodities under section 6 of the National School Lunch Act. A total of \$1,515,000 was available for administration—well under the 3.5 percent authorized in the act. As had been the case for the previous 2 years, no part of the 1950 appropriation was authorized for nonfood (equipment) assistance.

Financial contributions from sources within the States increased by \$28,000,000 in 1950, and Federal cash-assistance funds, which had to be matched 1 to 1 from sources within the State in 1950, actually were matched better than 4 to 1.

The number of children participating in the program in 1950 increased 14.0 percent over the number the previous year. Meals served totaled 1,276,000,000, an increase of 157,000,000 over 1949. Of the total meals served, 16.6 percent were served free or at a reduced cost. To serve the larger number of meals, schools increased the value of foods purchased locally from \$168,000,000 to \$181,000,000. This increase in food use was in addition to the sizable increase in amounts of USDA-donated foods used by participating schools during the year.

Total program expenditures for food (including the value of USDA-donated commodities), labor, and administration amounted to approximately \$367,000,000, as compared with \$308,000,000 in 1949.

In addition to section 6 foods utilized, school lunch programs also were the most important outlet for section 32 foods in 1950. Approx-

imately 303,000,000 pounds of section 32 foods, two-thirds of the total quantity distributed, were used by schools. Schools also used 43 million pounds of foods made available under section 416 of the Agricultural Act of 1949 and related legislation.

The school lunch program continued to provide a sizable market for foods available in plentiful supply; participating schools made local expenditures totaling \$10,800,000 for foods designated by the Department as "plentiful." This level of expenditure for plentiful foods exceeded the 1949 level by about 54 percent, while all food expenditures increased 8 percent.

Improvements in program administration continued during the year. A total of 26 States increased the amount of school lunch administrative funds for 1950 operations, thus bringing about improved services and guidance to participating schools. A total of 15 States, 7 more than in 1949, assumed all or part of the responsibility for fiscal audits of individual school programs—a function previously performed by PMA.

Because of the large volume of donated foods available, a special program was undertaken to reduce prices to children and to increase participation through wider and more extensive use of USDA-donated foods. Some highly dramatic results were obtained. Studies in Wisconsin and the District of Columbia definitely established the fact that there is a close relationship between price of school lunches and student participation. In several instances when prices were reduced, participation increased 300 to 400 percent.

In 1950, PMA also administered school lunch programs in 1,932 private schools serving nonprofit lunches to 277,000 children in 28 States and 1 Territory where State agencies were prohibited by law from disbursing Federal funds to private schools. This number of lunch programs handled direct by PMA is almost double the number of school lunch programs administered by the average State agency. Participation in private school lunch programs administered directly by PMA increased about 23 percent in 1950.

Direct Distribution

The volume of commodities distributed under all of PMA's direct distribution programs totaled 733,000,000 pounds in 1950, an increase of 57 percent over the volume the previous year. The gain was due to the increased amounts of commodities acquired under surplus removal programs, additional authority provided in the Agricultural Act of 1949 for the distribution of such commodities, and improved distribution facilities provided by State agencies responsible for intrastate administration of the program.

Approximately 457,000,000 pounds of section 32 commodities were distributed to school lunch programs, charitable institutions, and welfare recipients, as compared with 393,000,000 pounds so distributed in 1949. The commodities were made available to approximately 11,200,000 persons, as compared with 7,600,000 the previous year. Of these, 10,100,000 were school children, 1,000,000 were inmates of charitable institutions, and about 100,000 were welfare recipients.

Section 32 commodities shipped to State distributing agencies included fresh apples, fresh green beans, dry beans, butter, cabbage, dried whole eggs, honey, nonfat dry milk solids, fresh pears, Irish potatoes, sweetpotatoes, fresh prunes, dried prunes and raisins, fresh spinach, and turkeys.

The 128,000,000 pounds of commodities distributed under section 6 of the School Lunch Act included canned peaches, apricots, and plums, canned corn and beans, peanut butter, canned tomatoes and tomato paste, concentrated orange juice, and natural and process cheese.

Under section 416 of the Agricultural Act of 1949, price-support foods, held by CCC and in danger of loss through deterioration or spoilage, may be donated free at point of storage to school lunch programs, the Bureau of Indian Affairs, Federal, State, and local public welfare organizations for assistance of needy Indians or other persons, to private welfare organizations for assistance of needy persons within the United States, and to private welfare organizations for assistance of needy persons outside the United States.

Public Law No. 471, Eight-first Congress, permitted the payment of transportation costs on 1949-crop Irish potatoes acquired through price-support operations.

Donations under section 416 began in January 1950, when Irish potatoes were made available to eligible groups. By the end of the fiscal year, four other commodities were available: Nonfat dry milk solids, dried eggs, butter, and cheese. Approximately 86,000,000 pounds of these section 416 foods were distributed in the United States and the Territories during the last half of the fiscal year and an additional 63,000,000 pounds of 1949-crop potatoes were distributed transportation-paid under Public Law No. 471. Distribution to welfare organizations for foreign relief purposes up to June 30, 1950, amounted to nearly 25,000,000 pounds of nonfat dry milk solids and dried eggs, and about 170,000 pounds of butter and cheese, which were not made available for foreign distribution until the last month of the year.

In an effort to increase outlets for available commodities and to reduce costs of distribution, much work was directed at improvement of operations of cooperating State agencies. At the end of the year, 37 States had centralized distribution in a single agency and responsibility was divided among more than three agencies in only two States. As a result, it was possible to concentrate efforts on improving distribution operations in those States where responsibility was centralized to the extent required for effective program planning.

Food Trades Program

Activities designed to increase the flow of plentiful foods through normal trade channels received increased emphasis during the year. Not only was a large number of foods included in special sales drives but there was also an increase in the extent and effectiveness of trade cooperation.

The objective of the Food Trades Program is to increase consumer purchases and use of foods in plentiful supply by encouraging food trades and allied groups to concentrate merchandising activities upon

such foods. Consumer and trade interest is centered upon selected foods through the issuance of a monthly "Plentiful Foods" list. Distributors use the list as a guide in planning merchandising and advertising campaigns; consumers, public feeding establishments, and institutions use it as a buying guide; and information agencies and media use it to prepare material for consumer food-information services.

During the last year 52 different foods or food groups were included on the national "Plentiful Foods" lists. The system of selecting 2 to 4 of these foods for feature treatment, begun in 1949, was continued.

At the end of the year, the monthly list was being sent, on a request basis, to approximately 25,000 firms, associations, and key representatives of food trades and allied groups, including the press, radio, and other information outlets. Bulk of the distribution was being made to groups and individuals in major marketing centers.

In addition to this continuing program, special food drives are sponsored whereby the merchandising resources of cooperating groups are, for a limited time, concentrated upon a single food or food groups. As compared with 1949, greater emphasis was placed upon these food drives in 1950.

Fifteen national food drives were carried out during 1950, as compared with 7 in 1949. In addition, 14 campaigns were undertaken, for the first time, on an area, State, or local basis. Reports from trade and producer groups cooperating in these special drives indicate that they helped to bring about significant increases in sales during periods of peak supplies.

The special apple drive in the fall of 1949, for example, assisted in bringing about nearly a 50-percent increase in domestic consumption as compared with consumption the previous year. During the turkey drive, in the spring of 1950, sales were increased by 40 percent in one important producing area.

The increase in program effectiveness during 1950 resulted in large part from a change in basic operating principles—a shift to the concentration of effort on the major trade areas of the country. Increased emphasis also was placed upon the operation of the special food drives, in which the resources of the trade are concentrated upon a single food during its supply peak. The new approach met with considerable success. Reports indicated an increasing effect of the programs upon retail food sales. Moreover, it encouraged food distributors in major marketing areas, working through their own associations or informal committees, to coordinate their efforts with those of producer groups and others to increase and to improve the merchandising campaigns for plentiful foods.

Food Preservation Program

Assistance to public and private agencies in the development of school, institutional, and community food preservation facilities was continued by PMA during the year. Such facilities can assist in stabilizing local markets for perishable commodities and are highly important adjuncts to both school lunch and direct distribution programs.

Value of the food preservation program was demonstrated during August and September of 1949 when Bartlett pears, a highly perish-

able commodity, but well-suited to the school lunch program, were purchased under a section 32 surplus-removal program. These purchases were made at a time when most schools were not in session. If community and institutional processing facilities had not been available, distribution of the commodity would have been limited to 666 carloads instead of the 1,094 carloads disposed of, and many schools would not have been able to share in the distribution. In some States, the entire allocation for schools was processed. Of the 37 States to which pears were distributed, 32 reported that they processed a total of 15,000,000 pounds for schools and institutions. Fifty-three percent of this amount was processed for schools serving lunches to 1,471,813 children. Other section 32 foods that were processed for school lunch and institutional use included apples, plums, turkeys, sweetpotatoes, spinach, and cabbage.

The increased interest of State distribution agencies in food preservation resulted in greater demands for the services of the limited staff of PMA's specialists. These specialists are available to assist State groups in making plant surveys to determine equipment needs, estimate costs, and make floor plans for remodeling old facilities or building new ones. Assistance of this type was given in 178 plants in 26 States during the year, as compared with 85 plants in 15 States in 1949. As a result of the 1950 surveys, 93 floor plans and equipment drawings were made and used by 128 plants. Services rendered in making plant modifications and installing equipment increased from 229 in the fiscal year 1949 to 300 in the fiscal year 1950.

Efforts also were continued during the year to encourage greater State responsibility for planning a broad food preservation program to meet the needs of schools and tax-supported institutions. In States where such programs are under way, more effective utilization of donated commodities has resulted and outlets for locally produced perishables have expanded.

Because of the increase in the volume of commodities available for distribution, activities under this program were expanded to include those concerned with improving the storage and handling of food in schools and institutions. Information material, including fact sheets on the handling of cheese, butter, and concentrated orange juice, was developed and distributed to State agencies. Processing instructions are being revised to include information on storage and handling of carlots of perishable commodities prior to processing. Special efforts were made to assist schools to handle properly the frozen turkeys made available under section 32. Reports from the field indicate that this highly acceptable product was used in the school lunch program without losses from spoilage or improper handling.

TRANSPORTATION AND WAREHOUSING

Capacity of Government-owned structures for storage of Government-owned or Government-controlled commodities reached an all-time high total at the end of the fiscal year. Foreign and domestic shipments of commodities moved on schedule, although the volume of export shipments declined considerably from the previous year. The continuous program of representing the interests of agriculture before Federal and State regulatory agencies in connection with rail, motor,

water, and air transportation was successful in a number of instances. Progress also was made in work under the United States Warehouse Act, the approval and supervision of warehouses containing Government-owned commodities, and in the revision of storage agreements.

Storage Activities

Storage expansion

At the beginning of the fiscal year, the Commodity Credit Corporation owned grain storage structures having a capacity of about 45,000,000 bushels. These structures were purchased prior to 1941.

During the fiscal year, the CCC purchased additional grain storage structures having a capacity of about 409,000,000 bushels, the purchases being made under authority of the Commodity Credit Corporation Charter Act, as amended. Most of the new structures purchased were allocated to States in the Corn Belt.

About 82,000,000 bushels of storage space had been assured at the end of the year under the CCC's storage-guarantee program. Under this program, the CCC encourages the construction of commercial warehouse facilities for grain storage, in areas where existing facilities are inadequate, by entering into agreements with cooperative associations and other commercial warehouse agencies and guaranteeing use of 75 percent of rated storage capacity for 3 years in completely new storage structures, or for 2 years in new additions to existing storage facilities. The Bank for Cooperatives (of the Farm Credit Administration) is authorized under the Agricultural Act of 1949 to finance up to 80 percent of the cost of new storage facilities built by cooperatives which have received a 3-year storage guarantee from the CCC.

Farm-storage facility loans made during the year provided for construction of about 55,000,000 bushels of on-farm storage capacity. These loans were made under authority of the Commodity Credit Corporation Charter Act, as amended.

Use of Maritime Commission ships anchored in the Hudson River at Jones Point, N. Y., provided an additional 12,000,000 bushels of storage space.

Storage space was acquired by the CCC, through leases or "right of entry" agreements in idle buildings of the Army, Navy, Air Force, and other Government agencies. At the end of the fiscal year, the CCC had the right to the use of such space having a total capacity of more than 9,000,000 bushels.

Storage agreements

The Uniform Grain Storage Agreement, under which Government-owned stocks of grain are stored in commercial warehouses, was completely revised during the year to incorporate changes necessary for protection of warehousemen and the Government and to clarify the responsibility of both. There were in effect at the end of the year 7,890 agreements, representing about 1,139,000,000 bushels of capacity.

The Seed Storage Agreement also was revised. And work was under way at the end of the year in connection with revision of agreements for rice, peas, and beans.

United States Warehouse Act

As of June 30, 1950, warehousemen licensed under the United States Warehouse Act numbered 1,443. On the same date, 3,833 inspectors, graders, samplers, and weighers were licensed. From the standpoint of licensed storage capacity, the year marked the greatest capacity on record for cotton and grain since passage of the act. At the end of the fiscal year, applications for licensing were pending for a number of other cotton and grain warehouses. Other commodity warehouses under license at the end of the fiscal year and their capacities were: Wool, 56,376,500 pounds; tobacco, 490,000 pounds; fruit, cold pack, 10,189,500 pounds; cherries in brine, 8,846,000 pounds; nuts, 47,200 tons; cottonseed, 66,000 tons; broomcorn, 33,325 bales; dry beans, 3,733,884 hundredweight; seeds, 201,187 hundredweight; canned foods, 1,737,500 cases; and sirup, 1,588,640 gallons.

In cotton warehouse work during the year, 157 original examinations and 1,538 subsequent examinations were made, in the course of which 9,781,207 bales of cotton were located in the warehouses. In grain warehouses, 270 original examinations were made and 2,418 examinations following licensing. The number of inspections per warehouse varied in the various inspection districts throughout the country, ranging from 1 examination per warehouse in the Pacific Northwest to 3 inspections per warehouse in the Little Rock, Ark., district. The average was 2.5 inspections per warehouse.

Examination of warehouses

Examinations were made of 599 warehouses to determine the suitability of the facilities and the responsibility of the warehousemen for the storage of commodities owned by the Department. Following approval of warehouses, 657 examinations were made to determine that the facilities had not deteriorated and that products were being properly cared for.

About 100 examinations were made of warehouses storing Government-owned wool. By the end of the fiscal year this work had been practically terminated because stocks of wool in warehouses had declined to negligible proportions.

Early in the fall of 1949, an examination of all cotton warehouses being used for storage of CCC stocks was undertaken, with a view toward preparing a list of facilities that could be approved for use in the 1950-51 cotton program. Before this work was transferred to PMA commodity offices, inspection was made of 671 different facilities which were not operating under the United States Warehouse Act.

Natural cooler facility

Slightly more than 30,000 tons of commodities were handled through the Natural Cooler Facility near Atchison, Kans., now used for storage of Government-owned commodities. In addition to regular storage operations, experiments in the storage of various commodities was continued, with wheat and corn being added to the list of commodities on which tests are being conducted.

Bronx terminal market

The Commodity Credit Corporation on October 8, 1949, terminated its lease on the Municipal Terminal Market at Bronx, N. Y. During

World War II and for some time afterward, the Government needed the assurance that refrigerated warehouse space would be available for perishable commodities in the New York City area. In 1949, however, cold storage space in commercial facilities became adequate for Government needs and termination of the lease followed.

Transportation Activities

Transportation of Government-owned commodities

The volume of commodities delivered under both domestic and export programs declined materially from the previous fiscal year—from 43,712,000,000 pounds to 30,028,000,000 pounds. The decline, particularly noticeable with regard to export shipments, is attributed to reversion of most grain export functions to commercial interests, and, chiefly, to a materially lower export demand for American agricultural commodities.

Reductions in ocean rates were obtained, with savings estimated at \$350,000. Although railroads have displayed an increasing reluctance to grant special rates to the Government under section 22 of the Interstate Commerce Act, several quotations were obtained extending the time limit of storage-in-transit privileges expected to bring substantial savings to the Government. Through studies of carriers' protective services for perishable commodities, published tariff changes were obtained that are expected to result in additional savings to the Government.

Rates and services

Under the Agricultural Adjustment Act of 1938 and the Research and Marketing Act of 1946, the Secretary of Agriculture is authorized and directed to assist producers of agricultural commodities (under the Research and Marketing Act, fish and shellfish are defined as agricultural products) in obtaining and maintaining equitable transportation rates, rules, and regulations, and to appear in their behalf before Federal and State regulatory bodies. The authority also provides for informal negotiations and adjustments with carriers or groups of carriers. Without exception, these activities are carried on with the advice and cooperation of farm and trade organizations, cooperative marketing associations, and State agricultural authorities.

The Department took active part in 52 actions before transportation regulatory bodies and negotiated 48 informal adjustments with carriers. Of these actions, 5 were general in nature, 5 affected cotton and cottonseed products, 6 affected dairy and poultry products, 5 were on fertilizer and fertilizing materials, 9 on fish and fishery products, 25 on fruits and vegetables, 16 affected grain and grain products, 6 were on livestock and meats, 2 on wool and mohair, 15 were concerned with motor carrier rates, and 6 affected water rates.

Two new activities were begun during the year.

Under an appropriation of additional funds by Congress, studies were initiated into the efficiency of operations of the transportation systems, with the object of discovering wasteful methods and of suggesting improvements, so as to reduce operating costs and transportation charges. The first of these studies, an inquiry into opera-

tional savings through complete use of Diesel motive power on railroads was nearly completed at the end of the fiscal year.

The other project, made possible through Research and Marketing Act funds, is a thorough analysis of the financial needs of all forms of commercial transportation and their present methods of reporting their financial status to regulatory bodies. It is expected that this study will develop to what extent weaknesses exist in the transportation companies' reporting systems which might be misleading and improper when incorporated into their whole financial picture.

Results of both these projects, when combined with the litigation phases of rate adjustment work, are expected to mean better presentation of cases than heretofore has been possible.

Among the important decisions by the Interstate Commerce Commission during the year, the Department had represented the interests of agricultural producers in the following cases:

The last of the series of three general over-all rail rate increases initiated since World War II was brought to a conclusion. The cumulative percentage increases granted the rail carriers approximated 55 percent on all items of traffic, but only 48 percent on products of agriculture.

The general wool freight rate investigation was concluded after almost 5 years of litigation. In this case, initiated by the Department, all wool and mohair rates in the United States were attacked as unreasonably high. Reductions in the east-bound rates, as high as 15 percent, were obtained, effective April 10, 1950.

Another long-pending action concluded was the ICC investigation of the adequacy of railroad protective service against cold (heater service). The Department had been active in this case since 1940, advocating protective service in eastern territory comparable to that furnished in the West and the extension of the western service through to the Atlantic seaboard on apples, pears, and potatoes. These services, and charges therefore, were prescribed by the ICC to become effective in October 1950.

Again, partly through efforts of the Department, the ICC, in deciding rate-increase requests of motor carriers, granted less than was originally asked. The Middle Atlantic-New England carriers had asked for 10 percent and received 5 percent. The New England common carriers requested a 10-percent "interim" increase and a 25-percent "permanent" increase. The former was denied and the latter was sealed down to 15 percent.

The Department represented the interests of agricultural producers in a large number of other cases involving rail, motor, and water transportation before the ICC and various State regulatory bodies.

Cold Storage Reports

The monthly Cold Storage Report, containing data on about 86 classifications of foodstuffs in storage, as well as storage occupancy data on various types of warehousing operations—public, private, semiprivate, meat-packing, and apple-house storage—had an estimated total distribution during the year of 316,000.

Monthly reports were issued on cold-storage stocks of selected frozen fruits and vegetables and on margarine production. In co-

operation with the Department of the Interior, data on frozen fish in storage were collected and issued in summary form in the Cold Storage Report and in a detailed report by the Interior Department.

A number of special reports and surveys were made during the fiscal year, including a survey of tree nuts in storage, an appraisal of storage facilities available for the 1949-50 apple-pear crop, and a survey of the capacity of all cold-storage warehouses in the United States.

COMPLIANCE AND INVESTIGATION

PMA took vigorous action during the year to prevent criminal and civil frauds; violation of regulations; noncompliance with laws, orders, and regulations; and other irregularities which might have interfered with the effectiveness of PMA and CCC programs and operations. In addition, accounting systems were installed and periodic audits were made of the books and records of milk market administrators, control committees, and others, where such action was authorized or required by contracts or marketing agreements and orders. Assistance was given to the Office of the Solicitor of the Department of Agriculture, the Department of Justice, and various United States attorneys in connection with the preparation and prosecution of court cases.

A total of 1,377 cases was investigated during the 1950 fiscal year. Criminal prosecution in 60 cases resulted in total fines of \$79,730. Jail sentences to be served totaled 25 years, 9 months, and 10 days. Suspended jail sentences totaled approximately 15 years, whereas probationary time amounted to 36 years.

Recoveries of money fraudulently or improperly obtained from the Government totaled \$600,235. Savings—claims made against the Government but not paid—amounted to \$119,211. Collections of delinquent loans and penalties amounted to \$57,745. Fines, recoveries, savings and collections, in all, totaled \$856,922.

Civil suits settled during the year resulted in 13 judgments in favor of the Government, and in 5 cases injunctions were obtained to restrain violators from committing further violations of Department regulations.

Although it is impossible to evaluate savings to the Government through the factor of deterrence brought about by the general knowledge that investigations were being made and would be followed by court action where warranted, it is believed that there were such savings through increased respect for, and greater compliance with, PMA and CCC programs and regulations.

At the end of the fiscal year, 193 cases were under active investigation and 308 unassigned cases were awaiting investigation. In addition, there were 514 completed cases in various stages of action leading to ultimate disposition. New requests for investigations were received at the rate of 138 per month during the fiscal year 1950.

U. S. GOVERNMENT PRINTING OFFICE: 1951

